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STRAIGHT FROM HEADQUARTERS

by Robert P. Fischelis, *Secretary*
AMERICAN PHARMACEUTICAL ASSOCIATION

"Toward Better Pharmacy"

THE annual conference of Student Branches of the AMERICAN PHARMACEUTICAL ASSOCIATION located in Districts Nos. 1 and 2, which comprise the Northeastern and Middle Atlantic States, was held this year at St. John's University, College of Pharmacy, in Brooklyn on Saturday, April 26. The theme of the conference, as expressed in the heading of this editorial turned out to be very appropriate. Nearly 600 students from 18 Colleges of Pharmacy participated in the conference. It was a well-conducted meeting with Mr. Martin Greif of St. John's University presiding.

It is worth recording the topics of discussion here because this will give active members of the AMERICAN PHARMACEUTICAL ASSOCIATION an idea of the subjects which pharmacy students are giving attention to and on which, in this instance, they made some splendid contributions.

The Albany College of Pharmacy's topic was "The Durham-Humphrey Act as an Aid to Prescription Refills." Brooklyn presented "A Liberal Interpretation of 'Secundum Artem.'" Buffalo presented "Improving Pharmacy by Restricting the Sale of Non-prescription Health Items to Retail Pharmacies." Columbia handled "Fair Trade and Retail Pharmacy." Connecticut developed "Improving Physician-Pharmacist Relationships."

Duquesne discussed "Improving Pharmacy Through Professional Organization." Fordham asked "Would Socialized Medicine Help Pharmacy?" George Washington's topic was "Public Relations as a Means of Acquainting the Layman with the Professional Nature of Pharmacy." Howard University took up "The Proper Use of the Literature of the Profession."

Massachusetts dealt with "Legislative Aids to Pharmacy." Philadelphia discussed "Improving Pharmacy Through Expanded Educational Facilities." Pittsburgh presented ways of "Improving the Profession Through a Study of Marketing."

Rhode Island took up the topic "Should Pharmacists Locate in Health Centers?" The Rutgers' subject was "Duplication, a Detriment to Pharmacy." Temple handled "Improving Pharmacy Through Our Participation in Local Civil Affairs."

The Medical College of Virginia covered the topic "Would the Elimination of Side Lines Improve Pharmacy?" West Virginia discussed "Improving Pharmacy Through Effective Store Arrangement," and St. John's subject was "The Moral and Ethical Aspects of Pharmacy."

Both the original presentations of the subjects listed above and the extemporaneous answers to questions were handled extremely well. The original presentations demonstrated considerable study and re-

search. In the evening there was a banquet which was addressed by Very Reverend John A. Flynn, President of St. John's University, and President Francke and Secretary Fischelis of the AMERICAN PHARMACEUTICAL ASSOCIATION. Each of the speakers complimented the participants in the program most highly on the papers presented and on the splendid manner in which the meeting was conducted.

One could not be a witness to or participate in these proceedings without leaving the conference with the feeling that these young people are definitely headed "toward better pharmacy" and that every effort should be made by the profession and the drug industry to give those about to enter the practice of pharmacy every opportunity to develop their initiative and to join as soon as possible in making their contribution to better medical care for the public.

Make Your Reservations Now

BY THIS time every member of the AMERICAN PHARMACEUTICAL ASSOCIATION has received a preliminary announcement of the general convention program for the Centennial Convention to be held in Philadelphia and a form on which to make reservations for hotel accommodations. It is essential that we know as soon as possible whether you expect to attend this convention as there are quite a number of special arrangements which must be made as well in advance as possible.

Every member of the ASSOCIATION is urged to make an effort to attend the Centennial Convention. The local committee is very anxious to see that everyone is adequately provided for. Regarding railroad and plane reservations, it is expected that each member will arrange for his own, although there may be local groups which will want to get together to make special travel arrangements. Since the railroads offer no special rates for conventions in these days, passenger agents rely largely upon quality of accommodations as an inducement to use their facilities. Railroads and their local passenger agents are aware of this convention and will probably get in touch with officers of Local Branches of the A. PH. A. and State Associations, as well as individual members, to quote rates and arrange accommodations. However, because of the accelerated vacation travel anticipated this year, reservations should be made early.

The First Ten Years

THE tenth anniversary of the organization of the American Foundation for Pharmaceutical Education was properly celebrated at a luncheon at the Biltmore Hotel in New York on April 24. When the Foundation was organized in 1942, there was dire need for financial aid to Colleges of Pharmacy whose student bodies were being depleted as a result of the call for young men to enter military service. Not only did the Foundation collect funds from the drug industry in order to make possible grants for scholarships and fellowships, but financial assistance was extended to institutions which could not have weathered the storm had they not been able to call upon an organization like the Foundation to see them through.

The idea of pooling funds available from the drug industry for the advancement of pharmaceutical education is one which has appealed to donors and recipients alike.

By the appointment of a Board of Grants which is able to study individual cases and determine whether or not fellowships or scholarships should be allotted, there is proper screening of requests of all kinds and assurance that the money of the Foundation will be spent wisely.

There is still some difference of opinion among the Directors of the Foundation as to whether funds collected from the industry should be spent in excess of the amount of contributions in any single year or whether expenditures should be limited to the annual income. This is a question which cannot be answered categorically. The answer must depend upon individual circumstances.

For example, if a noteworthy project such as the pharmaceutical survey should come along, the Foundation would obviously have to weigh the importance of such project against the existing financial situation and determine to what extent the project should be supported beyond the Foundation's annual income for the year.

Likewise, if the American Council on Pharmaceutical Education should need funds for carrying out some project dealing with the accreditation of Colleges of Pharmacy, which would demand unusual financing at a given time, this should also be considered in the light of the good to the edu-

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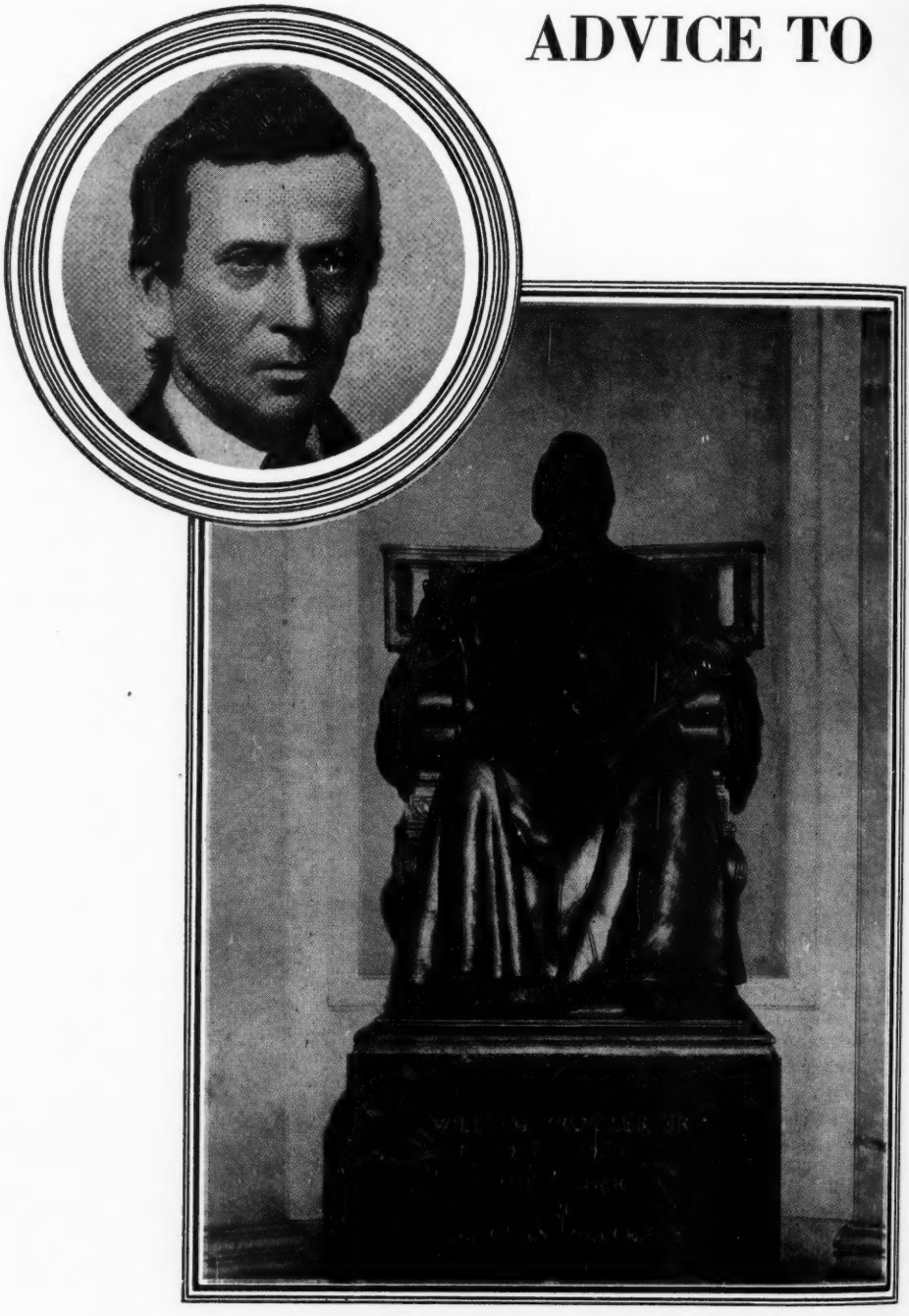
ADVICE TO



Most Pharmacists recognize William Procter, Jr., as he appears in the statue in the Rotunda of the A. PH. A. building. However, few would recognize him as the beardless professor pictured at the left.

TO YOUNG PHARMACISTS

by William Procter, Jr.

On March 11, 1858, William Procter, Jr., the Father of American Pharmacy, presented the Valedictory Address to the graduating class of the Philadelphia College of Pharmacy. His comments, as pertinent now as then, are republished here, in part, as the Association's greeting to the more than 4000 June graduates of the Class of 1952.

Gentlemen:—A time-honored custom requires that the ceremonial which has just been witnessed, should be followed by a word of gratulation and advise; and the duty of conveying it to you, on this interesting occasion, has devolved upon me.

The old relationship of teacher and pupil having ceased, permit me to welcome you into the ranks of the pharmaceutical profession, as qualified to take part in its duties and its requirements, and determined to win the honors and emoluments to which a faithful fulfilment of them will justly entitle you.

The steps by which you have gained your present position have been many and tedious; marked with numerous trials calculated to discourage your progress. These accidents of fortune have not proved injurious: the blasts that assail the hill-side oak but develop its internal power of resistance, intertwine more closely its fibres, and consolidate its tissues—so the difficulties of your novitiate, your apprenticeship, have tended to bring out your latent qualities; stimulate your ingenuity; teach you the power of patience, the force of endurance, and the all-conquering influence of perseverance, when directed to the attainment of an education in Pharmacy.

The profession you have adopted is among the most respectable that engage the attention of men; its results are directly beneficial to the community, when its practice is in the hands of qualified individuals; and without its aid the physician is greatly circumscribed in his ability to restore the sick to health and enjoyment. The function of the apothecary is one of great responsibility, in so far as he is the custodian of the powerful agents by which cure is effected. Ignorance or carelessness on his part may wholly defeat the wisest diagnosis, and most appropriate prescription; may baffle the physician in his endeavors to cope with disease; and even consign the sufferer to an untimely grave. In this view, then, the claims of Pharmacy to rank as an honorable calling, involving regular studies and skilful practice, will not be disputed; nor will the pharmaceutists, when worthily engaged in its legitimate offices, fail to receive the respect and support of the community in which he may be located.

It has been elsewhere said, that the three primary duties of the pharmaceutist are 'to procure and keep good drugs'; 'to prepare from these efficient and uniform medicines'; and 'to dispense these medicines to the sick, in a perfect condition.'

To perform the first of these judiciously, the apothecary must know the nature and qualities of drugs, their tendency to deteriorate by age and exposure, the means of preserving them in the best manner, and lastly, he must conscientiously practice what he knows, the most difficult and often the least appreciated portion of his duty.

Gentlemen, the lessons you have learned in the laboratory and at the lecture room have taught you to avoid errors, and they should not be forgotten, but by practice and study should be rendered more and more effective.

If the selection of drugs and the preparation of medicines involves so many requisites, the dispensing of these to the sick, by the prescription of the physician, calls for a higher qualification and a wider experience. Whatever knowledge he may

(Continued on next page)

William Procter, Jr.

• • • • • • • • • • • • *from page 317*

have gained, to whatever extent his ingenuity may have been stimulated, however much his patience and care may have been cultivated, the conscientious apothecary finds ample scope for their exercise and employment in this division of his daily engagements. If he would avoid error, the dispenser must do nothing without the consent of his *will;* he must be conscious of every act that he performs, and shun *mental preoccupation* as he would the fabled influence of the poison upas, as it is the *true* source of most of the fatal mistakes, strictly due to the apothecary, which the annals of Pharmacy occasionally record. In reading a prescription the dispenser has not only to understand what is written, but he should feel satisfied that what it calls for is intended by the physician. Although, legally, the recipe of a physician is a sufficient guarantee to dispense any poison or composition, yet the pharmaceutist when duly impressed with the responsibility of his office, feels morally bound to extend a rational judgment in reference to the prescription he dispenses, as well in justice to the prescriber, as to the patient, and himself.

The exercise of this watchful supervision requires the greatest delicacy and discretion, when it leads the apothecary to believe he has detected an error. It is a matter solely between the physician and himself. He may find, on inquiry, that some peculiar condition of the patient required the unusual dose, and that his own judgment was wrong. Hence nothing short of a feeling of duty, based on the utmost certainty, should cause him to doubt the literal meaning of a physician's prescription, except in cases of omission.

Fortunately the need of this interposition is rarely required, and would be yet more infrequent, but for the thoughtlessness of those who are near the physician when writing his prescription.

Let us take a view of the relative position of the dispenser and the community or neighborhood in which he is located. When an apothecary shop is opened, the proprietor tacitly, if not verbally, announces that he has prepared himself with the knowledge, skill and material required to perform the responsible duties that appertain to his vocation: each family around him have a direct interest in the truthfulness of this annunciation, as, sooner or later, all may be brought to the necessity of testing it practically. The nature of this knowledge and material is but obscurely understood by them; the pure and the impure, the inert and the poisonous, the true and the genuine, may be taken by each family in the confidence they repose in the ability and honesty of their dispenser. Gentlemen, mark this beautiful relationship! reflect on the almost child-like reliance which sends the family messenger to you for aid for its afflicted member! How priceless is the value of a pharmaceutical reputation, when exalted by knowledge and skill, and adorned with conscientiousness and integrity; and with what jealous care it should be tended that its brightness be not tarnished.

Like the physician, though in a different manner, the apothecary becomes the recipient of much that pertains to the unwritten history of his neighbors. In moments of distress, when the delicate equilibrium of organic forces which result in health, are harshly assaulted by the emotions, chapters are opened which give insight into unseen and untold episodes of humanity. To his ear, poverty-engendered illness brings many a tale of mental and physical suffering, which else had remained untold and quietly borne until better times smiled on their subjects. He often beholds the secret motives which influence public actions; he can understand the brilliancy of many a speaker and actor on the surface of public life, and trace it to opium or chloroform. He can sometimes detect the primal efforts of the suicide and poisoner; to him comes the incipient, and yet shame-faced, inebriate, to get relief from the effects of his early aberrations, whilst he still regards a reputation for sobriety; and to him often applies the victim of unhallowed love, for aid in her last extremity, when despair, gathering its darkening folds around her, pictures the future an unfathomable abyss of blackness and woe.

Nor is it always in the darker phases of mental outpouring that the dispenser of medicines becomes the recipient of human confidence. Family joys as well as sorrows find utterance. He is often made a witness of the bright aspirations which arise on the occasion of the safe accession to the family circle of a new candidate for parental care and responsibility. When the wanderer has returned to his home, stricken with disease, the pleasure that wells up among its inmates is shared by the apothecary as he listens to the gladdened accents of a parent or brother, whilst preparing something for the relief of the sufferer. These confidences and opportunities are not restricted to a single class; all shades of society become objects of interest to the intelligent dispenser; and he should let discretion govern his tongue, and wisdom his actions, in relation to all that transpires of private history in his intercourse with those who frequent his establishment.

Gentlemen, you who are dispensers of medicine, need I caution you further in regard to your pro-

fessional pathway? The precepts you have received and the practical training you have experienced have instilled into you the length and the breadth, the height and the depth of its varied requirements. Let me entreat you to keep them green and fresh in your memories; let a sense of professional honor keep you in the line which has been marked out for your pursuit; let no temptation allure you into a compromise with principle; determine to execute your known duties, in the right spirit, and the reward will be the confidence, respect and patronage of friends and neighbors.

My friends! we are about to part. Before giving the sign let me tell you a *truth*—a truth which twenty-seven years of professional experience have but tended to confirm. *The only permanent cure for these evils is the union of knowledge, skill and integrity in the dispenser of medicines.*

As teachers, we have endeavored to give you the first. The second you have gained in the several establishments of your special preceptors. The *last* rests with yourselves. *It* is the crowning qualification, which, as worn or discarded, shall render you a blessing or a curse to the communities in which your future lots may be cast. Let me earnestly invite you, then, to wear it in its purity and unsullied brightness, as it applies to your professional duties in all their details. Rest not satisfied with that phase of integrity which relates to the payment of debts, and the *visible* rendering of what is due to your neighbors and customers. This much can be legally and socially claimed of you, and the merest regard for reputation will lead to their liquidation. But let your integrity be *felt* by the invalid in the seclusion of his chamber, through the purity and perfection of your medicines, in the care exercised in dispensing them, and in your intelligent attention to the requirements of the physician, as expressed in his written prescriptions. Let it be *manifested* by your resistance to those strong temptations to gain, which a mercenary system of empyricism holds out to the apothecary and druggist, which, too often, render them willing agents in the deception of the public; and finally in a uniform and undiscriminating attention to the medical requirements of your several neighborhoods. Integrity thus practised brings a reward as certain as it is priceless, a satisfaction that no money can buy, second only to that higher happiness which crowns the fast held integrity of the good man, who has unswervingly performed all his moral and religious duties. *Farewell.*

William Procter Jr

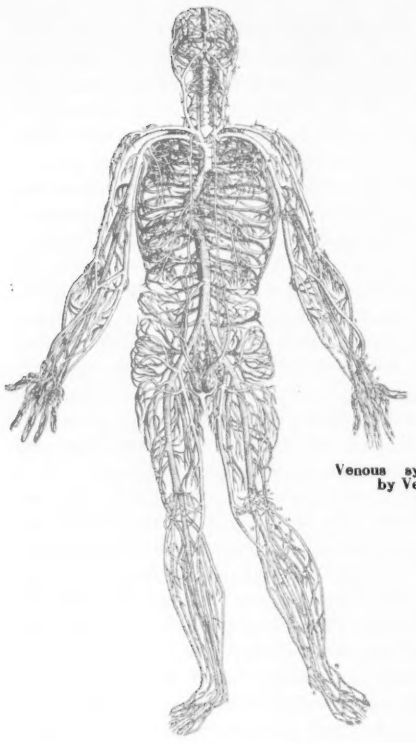
William Procter, Jr.

—From the Proceedings of the American Pharmaceutical Association, 1874, page 469.

William Procter, Jr., died on the morning of the 10th of February, 1874. After a very interesting lecture, which was greatly enjoyed by the class, and which enjoyment he was particularly pleased with, he went home and conversed till a later hour with his wife. Upon retiring his breathing attracted the notice of his wife, who called for assistance, but before medical aid could be procured his spirit had fled.

Prof. Procter was the ninth and youngest child of Isaac and Rebecca Procter. His father emigrated from York, England, in the year 1793, and finally settled in Baltimore. William was born on the 3rd of May, 1817, and when but a little more than three years old his father died, leaving but a small estate. This prevented William from enjoying the liberal education one of his abilities and tastes was so well fitted to receive, but the deprivation only furnishes us with another proof of the superiority of his mental constitution in overcoming the disadvantages. It would be superfluous to cite the different works upon which his reputation rests; the whole series of the *American Journal of Pharmacy* for nearly thirty consecutive years, and the various volumes of the PROCEEDINGS of this ASSOCIATION, attest his industry and the painstaking care with which he worked. He was Corresponding Secretary of this ASSOCIATION for four years, 1852 to 1857, and first Vice-President in 1859 and 1860, and President in 1862. While we thus record our high esteem of his scientific character, we would not do justice to his memory did we fail to mention the exalted moral worth and sterling integrity which characterized his every action. Well may his bereaved family feel that they have lost one who has rarely been more justly esteemed in life, and whose death left a greater void in the hearts of those with whom he was accustomed to associate.

Clinical Status of Dextran, PVP, and Gelatin Products Part I



"Venous system" by Vesalius, 1543

by Lt. Col. Edwin J. Pulaski*

DEPUTY DIRECTOR, DIVISION OF SURGERY, ARMY MEDICAL SERVICE GRADUATE SCHOOL, WALTER REED ARMY MEDICAL CENTER.

Presented at a Symposium on "Frontiers of Research on Blood and Plasma Extenders," marking the formal dedication of the new Sharp & Dohme Medical Research Laboratories, West Point, Pennsylvania, Monday, May 12, 1952.

THE TERMS, plasma expander, plasma volume expander and plasma substitute, have come into being recently to denote a class of solutions of varied chemical composition but having a common property, namely, the ability to support the circulation in the shock state. Circumstances often necessitate the use of less than ideal measures in the treatment of large numbers of casualties in a disaster. Experiences in World War II have established the unique position of whole blood in the treatment of wound shock. Plasma also was important in the saving of many lives, but abundant clinical observations attest to its shortcomings in resuscitation of the seriously wounded.

The difficulties with these biological materials, especially blood, lie in a number of important considerations: (1) the amounts procurable in relation to estimated needs; (2) the problems of storage, including the need for refrigeration, and deterioration on aging; (3) the necessity for typing and cross-matching the material to the individual patient; and, (4) the danger of transmitting the virus of hepatitis.

* The author is indebted to colleagues in his own laboratory for some of the data used in this paper. Much of the information has been made available by the Division of Medical Sciences of the National Research Council. Many investigators cooperating in the plasma substitutes program have sent frequent reports of current research progress, and access to this material has been an invaluable aid. Their contributions will be recognized as they appear in the scientific journals.

Even though the circulating volume of blood and plasma is maintained after injury with hemorrhage, failure to supply the vital organs with sufficient oxygen may lead to irreversible organ damage. Further administration of fluids, or even whole blood, may then be ineffective in resuscitating the patient. Available whole blood in a major disaster should therefore be used, as far as circumstances permit, for casualties with the most severe injuries. When loss of blood has not been excessive, it is permissible and much more economical to use a blood derivative or one of the plasma volume expanders.

The fluids used when whole blood is not available may be classified as blood derivatives and plasma expanders. The blood derivatives are plasma, serum albumin, and globin. The latter is now undergoing rapid development and intensive study. Plasma (1) aids in maintaining and stabilizing the blood volume, (2) transports red blood cells, antibodies, nutrients, and hormones to the tissues, and (3) provides components for the clotting mechanism. The most serious complication resulting from the use of plasma has been homologous serum jaundice. One problem urgently requiring solution is the development of a method of sterilization of pooled plasma which will destroy the virus and prevent the transmission of disease. Although albumin, produced by the fractionation of plasma, has certain advantages and disadvantages over plasma, the problems of sterility and supply are the same as for plasma and, in addition, the product is expensive and is available only in very limited amounts. Five units of plasma are required to produce one unit of albumin. Bovine albumin was tested during World War II, but, because it could not be made nonallergenic, its use was discontinued. Despeciation of animal plasma is currently being investigated.

The use of a chemically modified human globin preparation as a plasma substitute was first described in 1945 by Strumia et al., who reported that processed human globin solutions showed promise as safe and effective preparations in replacing lost blood in patients suffering from severe shock. Globin is prepared from unwashed red blood cells salvaged in the processing of plasma and plasma derivatives. The resulting product remains stable for a period of years, either in the dried form or in solution. Between two and three units of globin, each containing 16 grams of globin and osmotically equivalent to 250 cc. of plasma, may be obtained from the cell residue of a single bleeding. As yet it cannot be administered with complete freedom from reactions. A fraction of the amount infused is excreted in the urine. The fate of the remainder is now undergoing study. These globin solutions show some promise as plasma expanders. Other chemical modifications have been applied to globin but the products are still in the experimental stage.

Because of the difficulties in building up stockpiles of whole blood and blood derivatives for a national emergency, there is widespread interest in a group of storable substances which cause and maintain an increase in the circulating blood volume, namely, the plasma expanders. Many such substances have been described and studied, particularly those of large molecular size. Gum acacia in six per cent solution was used in World War I and thereafter until it was learned that the gum was stored in the body indefinitely and produced tissue changes in such organs as the liver. Pectin, a polysaccharide derived from citrus fruits, has been tested and its use discontinued because the product could not be standardized. In the past few years new plasma expanders have been investigated, including gelatin and its derivatives, dextran, and PVP (polyvinyl pyrrolidone). Each has its merits and its deficiencies. The following characteristics should be found in the ideal plasma substitute: (1) osmotically, it must be the equal of plasma; (2) its viscosity and retention in the blood stream must be about that of plasma; (3) it must be stable on storage; (4) it must be nonantigenic, (5) it must be nontoxic; and (6) it should have no unfavorable effects on cell structure and function. The gelatin products, dextran and PVP, only partially meet these requirements.

Dextran

The dextrans make up an ill-defined class of macromolecular carbohydrates produced by a specific group of bacteria—mostly of the genus *Leuconostoc*—acting on sucrose. As contaminants in sucrose refining and storage, they form a troublesome, viscous slime. On the basis of his work on these problems, Ingelman chose the material as a possible plasma expander.

The native dextrans are similar in that they are made up of glucopyranose units with alpha 1, 6 linkages predominant. Alpha 1, 4 linkages, thought to be associated with branching of the chain, are present in widely varying frequencies (from $^1/_3$ to $^1/_{20}$ of the total links) in different cultures, the primary determinant of the proportion apparently being the active bacteria or enzymes. It may also be modified somewhat by various growth supplements in the culture

(Continued on next page)

Status of Dextran

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medium. For use as a plasma expander, the very large native molecules having molecular weights of several million are partially broken down, usually by acid hydrolysis, to form units of a size found to be most effective (molecular weight of about 75,000). Clinical dextran, like all the plasma expanders, consists of molecules of widely differing sizes. The information derived from osmotic pressure measurements, the number average (Mn), is not of great physiological use because osmometer membranes retain particles which pass rather freely through capillary walls. The *in vitro* and *in vivo* colloid osmotic pressures may therefore be quite different. Light scattering measurements, supplemented by measurements of viscosity provide data for the calculation of the weight average molecular weight (M_W) which is of use in drawing up production specifications.

Following the intravenous administration of the available clinical preparations, dextran is excreted primarily in the urine. Only minutiae appear in the normal gastrointestinal tract. In the presence of disease, this may not be so. Large quantities (100 Gm. in 24 hrs.) of dextran have been reported in the gastric juice of a man with fatal uremia and ileus of 12 days duration. The rate of urinary excretion is reported to be between 10 and 40 per cent in the first 24 hours, variations depending on characteristics of the material as well as the state of the animal. There is a slow metabolic breakdown of the material to CO_2 in the tissues; and at the end of 72 hours, dogs given C^{14} marked dextran were found to have 65 to 70 per cent of the radioactivity in the urine, four to six per cent in expired CO_2, $^1/_2$ per cent in extracellular fluids (including plasma), three to five per cent in the viscera, and about 25 per cent unaccounted for. That reticulo-endothelial or other storage does take place is indicated by the finding of C^{14} labeled material in liver, spleen and lymph nodes. Microscopical evidence of damage has not been reported in these organs. Studies of the fate of C^{14} labeled dextran in human subjects have shown that two to four weeks after administration, essentially all of the dose can be accounted for. The smaller molecules are excreted unchanged in the urine while the larger ones are slowly metabolized. Some of the carbon circulates for a while in the general metabolic carbohydrate pool but is eventually released and excreted as CO_2.

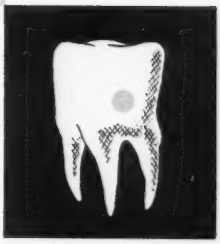
A characteristic toxic reaction, of allergic nature in humans has been reported with some dextran preparations. Various manifestations include flushing, urticaria, angioneurotic edema, wheezing, vasomotor instability, generalized aches and pains, and delayed painful, joint swelling. It is presumed to be an immunologic reaction and has been reported by American groups using the Swedish preparation "Macrodex." It was encountered in approximately 40 per cent of military subjects receiving 500 cc. or less of a six per cent solution. It should be noted that such a high reaction rate has not been reported in Sweden where the same material was used. Reactions were trivial or absent in military patients under anesthesia. Under the same testing conditions with American preparations of dextran the reaction rate was also very low.

The potentiality of dextrans' producing allergic reactions in man had been indicated some years ago by Hehre and Sugg who demonstrated that certain native dextrans shared antigens with several pneumococci and that guinea pigs sensitized with pneumococcal antiserum could be fatally shocked with dextran. More recently Kabat has found that native and clinical dextrans if given subcutaneously will behave as antigens and induce antibody production and cutaneous reactivity in humans. Antigenic experience with *Leuconostoc* and its related haptenes appears to be fairly common in the American population; approximately 20 per cent of normal adults have recently been found to possess agglutinins to this organism. On the other hand, attempts to correlate immunologic reactions with laboratory and clinical tests for the presence of sensitivity have been unsuccessful. Reactions to intravenously administered dextran have thus far failed to correlate entirely with either skin sensitivity or anti-Leuconostoc antibody and it is not possible at the present time with the methods available to predict in what manner an individual will react to an infusion.

In a study of the molecular weight of dextran it has been found that the renal excretory threshold for molecules is slightly larger than 36,000 molecular weight. The problem of molecular dimensions and shape is, however, complicated by the presence of variable amounts of branching in the molecular structure which demonstrably affects its physical and chemical behavior. Studies of this factor are being undertaken, but definitive results are not yet available.

Editor's note: Part II of this paper will discuss PVP and Gelatin and its derivatives. It will appear next month.

facts about Fluoridation



What the pharmacist should know about fluoridation of public water supplies.

by Samuel W. Goldstein*

THE ADDITION of fluoride to potable water is primarily a public health measure. It is a step in the modern practice of preventive medicine. Compounds that liberate active chlorine are added to water supplies to kill bacteria and prevent the spread of typhoid and other water-borne diseases. Compounds containing fluorine are added to water supplies where the natural fluoride content is not high enough to aid the formation of caries-resistant teeth. There are many localities in which the natural fluoride content of the available and utilized water is higher than the approximately 0.7 part per million that is being added. The biological safety of the fluoride compounds in such concentrations is attested by the approval of the program of fluoridation by the U. S. Public Health Service, the American Dental Association, the National Research Council, and other federal and state groups that are interested in the public health.

The safety of waters containing about 1 part per million of fluoride is strongly emphasized by the fact that many localities have concentrations of about 4 parts per million, and at least one has about 8 parts per million of fluoride in its natural water. The high fluoride concentration is generally found in waters obtained from deep wells in certain sections. It was the relative freedom from dental caries in these localities that led to the discovery of the relation between fluoride and dental health. The only undesirable effect noted when the fluoride content exceeded about 2 parts per million was a mottling of the teeth in some individuals. The teeth, nevertheless, were strong and relatively free from caries. A dosage of 0.7 part per million of fluoride in the form of sodium fluoride, is now considered sufficient to provide the necessary protection against dental caries in regions where the mean annual temperature is above 70° F. Fluoridation of water supplies low in natural fluoride content can reduce the incidence of tooth decay by about 65 per cent. This effect will not be noticeable in the adults and will be apparent in the children about 14 years after the program starts. The pharmacist should know these things in order to answer intelligently the questions of his clientele.

Effect Upon Pharmaceuticals

All the questions that have been asked about the effect of fluoridation of public water supplies upon pharmaceutical compounding can be answered very briefly. There should be no noticeable effect upon compounded products.

Many pharmacists have long used only distilled water in their compounding activities. That has been and will continue to be the best practice. Pharmacists in some localities must use distilled water or de-ionized water because of high iron or high sulfide concentrations, or because of the extreme hardness of the natural water due to calcium or magnesium compounds.

The advantage of distilled water over natural water is that all the dissolved materials are removed; and the further advantage of distilled water over natural and de-ionized waters is the fact that, when freshly prepared and properly stored, the distilled water is sterile.

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* Director, A. PH. A. Laboratory.

by Marius P. Johnson, M.D.*

THE Menopause

Too often, the term "menopausal symptoms" is used when "climacteric" is more applicable. Dr. Johnson sets forth the distinguishing features which define one from the other.

MANY CHANGES in today's world have moderated that period of a woman's life commonly referred to as the menopause. Increased life expectancy, modern general and gynecological surgery and improved obstetrics have enabled more and more women to reach middle age without major physical disabilities. On the other hand, as civilization progresses the inevitable and ever-increasing nerve tensions coupled with menopausal symptoms form a team that frequently works havoc with the woman in her forties.

"Menopausal Symptoms"

We used the term "menopausal symptoms." This is in common usage, but might well be clarified for the purposes of this article. Menopause is the cessation of menstrual flow as a result of the ovary no longer functioning in response to the gonadotropic hormones of the anterior lobe of the pituitary. The blood level of gonadotropic hormone rises as a result. The menopause may occur suddenly or be drawn out over a period of a year. It may occur naturally or be produced artificially after radiation or pelvic surgery. The average time of its occurrence is between the ages of forty and fifty years.

The Climacteric

The climacteric is not identical with menopause. It refers to subjective signs and symptoms that are associated with the menopause. The duration of the climacteric is longer than the menopause, lasting upwards to five or more years. The signs and symptoms are a distressing group and include hot flushes, various types of nerve tensions ranging from depression to excitement states, sweating, especially at night, headache, insomnia, vertigo, anorrhexia and joint pains. Weight gain unfortunately is common. Also, the dangerous sign of uterine hemorrhage often occurs at this time. This type of bleeding may not necessarily be due to the menopause. There is a long standing tradition among women that abnormal bleeding at the menopause is to be expected. Nothing could be farther from the truth and because of this fallacy numerous cases of genital carcinoma are not diagnosed as early as they might otherwise be. It is normal to bleed less often or less in amount at the menopause. It is *not* normal to bleed more often or more in amount at the menopause. One of the greatest enemies of the woman in her forties who is flooding, is the well-meaning neighbor who advises: "You are having the change of life. Bleeding

* Dr. Johnson, obstetrician and gynecologist, has made this field his specialty since 1945. He is Chairman of the Committee on Medical Service and Public Relations of the Maryland Medical and Chirurgical Faculty, Member of the Maryland Speakers' Bureau of the American Medical Association, and was a consultant obstetrician at the Baltimore City Hospitals for ten years.

Author's Summary

When the ovary no longer functions in response to the gonadotropic hormones, menopause results.

The climacteric refers to subjective signs and symptoms associated with the menopause, but is not, in itself, identical.

The belief that abnormal bleeding during the menopause is to be expected is a fallacy.

It is not normal to bleed more often or more in amount at the menopause.

Excessive bleeding or too frequent flow should be considered as possible cancer until proven otherwise.

like that is normal." Excessive bleeding or too frequent flow should be considered as possible cancer until proven otherwise and every case deserves a pelvic examination, biopsy, and usually a curettage.

Ovarian Hormones

The chemistry of the ovarian hormones is worthy of mention. Estrone and estradiol are the more potent substances secreted by the ovary. They stimulate growth of the endometrium locally and effect a general stimulus to the body both in appearance and action best summed up as feminizing. Another hormone manufactured in the ovary is progesterone. It converts the structural endometrium into a nutrient lining of the uterine cavity (secretory) which is necessary to nourish the newly implanted fertilized ovum. When these hormonal effects cease either naturally or following radiation or pelvic surgery, several conditions come to pass. Uterine bleeding ceases (menopause). Hot flushes, *et al.*, begin (climacteric) and ovulation stops (sterility). Pregnancy should be considered as possible, however, until there has been no menstrual flow for one year.

Need for Treatment

Treatment of the menopause and the climacteric are very different. Perhaps if they are discussed separately, some of the confusion can be dispelled. The woman in the menopause wherein bleeding suddenly or gradually stops needs no treatment as far as the bleeding is concerned. If she bleeds too often or too much during the time of life when menopause is likely to occur, this bleeding should be investigated. It is not menopause but might be cancer or functional bleeding. It should never be treated symptomatically without examination. Time is an urgent factor in these cases and cannot be overstressed.

Treatment of the climacteric is often sought before the menopause occurs. The discomforts of flushes, etc., are very easy to allay when their cause is predominately due to hormone deficiency. The ovarian hormones are specific for the climacteric. In fact, if they do not produce symptomatic relief, the diagnosis of a neurosis or psychosis is more likely correct than that of the climacteric. The synthetic stilbesterol, the natural estrogens or, in some cases, progresterone or testosterone are very effective in controlling the symptoms of the climacteric and in restoring a sense of well-being to these harrassed women. There are a few cases who will need other drug therapy such as aspirin for headache, the sedatives or salicylates for joint pains.

Hormone Therapy

Is there danger in hormone therapy in the climacteric? The reason for asking this question is that marked differences in opinion have existed in the not too distant past. Currently, stronger voices are being heard to dispel such fears. There seems to be a lessening belief that development of cancer will be stimulated by estrogens. Although this may be the case, the safe attitude to take is one of caution. The estrogens are far too valuable in the treatment of the climacteric to toss them overboard. They should be used with the following precautions:

1. Always use in the smallest dose concomitant with relief of symptoms.
2. Use guardedly or not at all in those cases that show an increase in or return of uterine bleeding.
3. Do not use at all in those cases where there is a strong family history of cancer or those who have functional bleeding problems. It is in the latter group that progesterone or testosterone are useful substitutes although not as efficacious.

The last word is yet to come on the management of the menopause and the climacteric. Advances in cancer research and physiology of the reproductive system will continue at a rapid pace and a frequent review of the subject from time to time is advisable.

by Leonard A. Scheele, M.D.*

World Health in 1952

So that readers will be familiar with the activity of the World Health Assembly, the editors present this review of the Fourth Meeting held a year ago. Early this month the Fifth Assembly convened in Geneva.

IT IS a pleasure to participate in this meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION. I have been asked to appear here as a man who wears two hats: that is, in my capacity as Surgeon General of the Public Health Service and as President of the World Health Assembly.

The World Health Assembly is the policy-making and legislative body of the World Health Organization. The WHO was established as a permanent, specialized agency of the United Nations on September 1, 1948. Its objective is nothing less than "the attainment by all peoples of the highest possible level of health."

Health is defined in the constitution of WHO as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Moreover, the WHO constitution affirms that "the health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and states."

The United States Government has adopted this principle of health as a basis of peace, not only through the membership of our country in the WHO and other international health agencies, but also through the emphasis on public health in the Institute of Inter-American Affairs, the Economic Cooperation Administration, and in the technical assistance programs of the State Department.

The Public Health Service has been actively engaged in international health work since the establishment of the Pan American Sanitary Bureau in 1902. But in recent years, our interests and responsibilities have expanded and deepened. Today, there are experts of the Public Health Service in every major international health program operated by the United States Government. Others are serving on expert committees of the WHO or on loan to the Secretariat. More than 150 of our technical staff are on overseas assignments.

So whether I speak for the Public Health Service or for the World Health Assembly I am speaking for an organization committed to the principle that health is a basis of economic progress and world peace.

The world Health Organization has been in operation for four full years. It has been my privilege to serve as Chief of the United States Delegation to three of the four annual World Health Assemblies. It has been inspiring to watch the Assembly and WHO develop year by year into a smooth-running, hard-hitting agency.

The Fourth World Health Assembly held in Geneva, Switzerland, a year ago this month, was a record-breaker in achievements, attendance, and the speed with which it got through its heavy program.

Delegations from 70 countries and observers from 20 international organizations attended. With the highest attendance yet recorded, the Assembly completed its task in just 16 working days, two and a half days ahead of schedule.

Some of the activities of WHO affect directly the health of all peoples. Others are designed to assist the governments of member-states in raising the level of health in their countries. The second category of activities is directed primarily at the health problems of underdeveloped areas.

Among the outstanding accomplishments in the group of world-wide services, I have in mind especially the standardization of biological products, the development of an International Pharmacopoeia, and the adoption of International Sanitary Regulations.

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* Surgeon General, Public Health Service and President of the Fourth World Health Assembly, 1951.

Presented before the 2nd General Session, A. PH. A. Convention, Buffalo, N. Y., August, 1951.

The WHO's Central Technical Services are responsible for these and other activities which benefit all countries. The International Pharmacopoeia should in time make it possible to procure drugs made to uniform strength in any part of the world. The Expert Committee on Standardization has adopted new international standards for penicillin, Vitamin E, and heroin. The WHO has also formulated recommendations of essential therapeutic, prophylactic, and diagnostic agents of animal and plant origin.

The work of the Expert Committee on Habit-Forming Drugs is especially notable. Through it, the WHO is able to make a significant contribution to the work of other agencies concerned with the international traffic in habit-forming drugs. International collaboration should serve as a major wedge against the increasing problem of drug addiction. In many countries, there is growing concern about this problem, due to the increased illicit export of narcotic drugs from certain parts of the world.

The new International List of Causes of Death, adopted last year, will bring the nations of the world closer to comparable vital statistics than ever before. The WHO's Epidemiologic Intelligence Service has also been a powerful influence on the improvement of disease reporting.

Progress in this field will be rapid now as a result of one of the greatest accomplishments of the Fourth World Health Assembly. On the closing day, May 25, 1951, the Assembly unanimously adopted the new WHO Sanitary Regulations relating to international traffic. The new regulations were effective in October 1, 1952, without the need for ratification by individual governments. This means that virtually the entire world of nations—except the communist bloc—will abide by a single set of rules for preventing the international spread of epidemic disease.

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World Health

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The new code is of interest to all public health agencies and to military authorities. Although it ensures maximum protection, it is, in general, less restrictive than existing international sanitary codes. It removes many avoidable restrictions in trade and travel and makes the requirements for vaccination certificates simpler and less irksome.

The WHO's Advisory Services are designed to aid the national health administration of individual countries. Their chief purpose is to demonstrate how public health knowledge and techniques developed in any part of the world can be applied in other areas which have the same or similar problems.

It is primarily through these services that the World Health Assembly expects to attack the major problems specified in the WHO's 1952 program. Training of public health workers and demonstration projects will be carried out in such fields as: malaria, tuberculosis, venereal disease, other infectious diseases, nutrition, maternal and child health, sanitation, and so on. With very extensive cooperation from the United Nations International Childrens Emergency Fund, services in these and other fields will be rendered in 1952 to about 60 countries and some territories.

The world shortage of doctors and public health workers will receive increased attention. Educational projects to be carried out through Regional offices of the WHO will use various methods for increasing knowledge and skills in a large number of countries. The WHO will provide fellowships for individuals and aid to training institutions, as well as the conduct of seminars and conferences on topics of mutual, critical importance.

To accomplish these and many other aims, the WHO will operate for the first time a coordinated program on a world-wide basis, irrespective of the source of funds. Activities will be financed from WHO's own regular budget, from the United Nations fund for Technical Assistance for Economic Development, and from the United Nations International Children's Emergency Fund.

The 1952 working budget adopted by the Fourth World Health Assembly is about 25 percent larger than that for 1951. The amount approved by the Assembly is $7,700,000 as compared with $6,300,000 in 1951. But for the failure of the communist countries to participate, plus delayed payments from certain other countries, the expenditure level would have been about one million higher. However, WHO is to receive about 22 percent of the funds available through the United Nations, and UNICEF is expected to spend about $5 million for health programs under WHO's technical guidance.

I should like to say, in passing, that the World Health Assembly reduced the proportion of the United States contribution for the third consecutive year. Our share is now one-third of the WHO regular budget—the highest that any nation will ever be expected to pay. The sum is relatively small—$2,800,000—by comparison with the costs to us of disease throughout the world.

The need for world health programs against communicable diseases is illustrated by the fact, for instance, that every sixty seconds 20 people somewhere in the world die from malaria, tuberculosis, or intestinal infections. With the aid of such modern agents as DDT, antibiotics, other drugs, and vaccines, public health workers can virtually rid the world of these and other scourges.

The result will be relief—not only of vast suffering—but also of much of the world tension and unhappiness that lead to war. For the areas where high death and sickness rates occur are the very ones in which poverty and hunger, linked with disease, are the causes of political unrest. Sick men and women cannot work to feed their families and to advance their countries in this industrial era. Countries in which the average life expectancy is around 25 years have not enough strong, productive adults to produce the needed goods and services.

People all over the world are beginning to realize this and to press their governments for a better way of life. The American pattern is to help others to help themselves. In the field of public health, we are demonstrating this through participation in WHO and other international agencies, and through our own foreign aid programs. World health improvement is, in fact, a major concern of our foreign policy. According to the State Department, it is "a major factor in economic and social progress throughout the world—and thus in the preservation of peace."

Public health workers are trying to bring about that needed improvement in some of the world's most troubled areas. WHO, for example, is conducting health activities for Arab refugees in refugee camps. One of these programs is the first large-scale campaign for treating trachoma with antibiotics. The antibiotics have been found to clear up the secondary infections, there-

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NEW PRESCRIPTION PRODUCTS

All items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists, through these pages, will have full information at the same time, or even before, products are detailed to the physician. For inclusion in this free editorial department, send descriptive literature to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, *2215 Constitution Avenue, N. W., Washington, D. C. Where possible, all descriptions should follow the style shown on these pages.*

ALMEHIST

Description: Capsules, each containing: pyrilamine maleate, 50.0 mg.; hyoscine HBr, 0.016 mg.; hyoscyamine HBr, 0.08 mg.; and *d*-amphetamine sulfate, 1.5 mg.

Indications: For the relief of allergic symptoms, especially hay fever. Also recommended in the treatment of motion sickness.

Administration: One capsule three times a day. Can be increased or reduced to a level which maintains symptomatic relief.

Form Supplied: Bottles of 100 and 1000.

Source: Meyer Chemical Co., Inc., Detroit, Mich.

AMINODROX TABLETS

Description: A combination of aminophylline and aluminum hydroxide gel, dried, prepared in five dosage combinations in uncoated tablets.

Indications: A method of oral administration of aminophylline in doses large enough to produce the same high blood levels obtainable with parenteral administration. In the treatment of congestive heart failure, bronchial and cardiac asthma, status asthmaticus, and paroxysmal dyspnea.

Administration: Oral, amount as directed by physician.

Form Supplied: Bottles of 100 and 1000.

Source: The S. E. Massengill Company, Bristol, Tenn.

APRESOLINE

Description: Antihypertensive agent; brand of hydralazine.

Indications: Lowers blood pressure, simultaneously increases blood flow through the kidneys, and tends to improve cerebral circulation even though blood pressure is lowered.

Administration: As directed by physician. Should be used only with extreme caution in patients with coronary artery disease, advanced renal damage, and existing or incipient cerebral vascular accidents.

Source: Ciba Pharmaceutical Products, Inc., Summit, N. J.

BENEMID PROBENECID

Description: Benzoic acid derivative in the form of tablets, chemically, *p*-(di-*n*-propylsulfamyl) benzoic acid. The compound is extremely stable, sparingly soluble in water, and almost tasteless.

Indications: In the treatment of gout, Benemid Probenecid is designed to create a favorable balance between production and excretion of uric acid.

Administration: One tablet (0.5 Gm.) daily for one week, followed by two Benemid tablets (1.0 Gm.) daily in divided doses. On prescription only, and dosage should be controlled by physician.

Form Supplied: Bottles of 100 0.5-Gm. tablets.

Source: Sharp & Dohme, Inc., Philadelphia, Pa.

B COMPLEX (FORTIFIED)

Description: Capsules, providing the natural B complex as derived from yeast extract and liver, fortified with added quantities of free crystalline vitamin B_{12}, biotin, folic acid, inositol, choline, p-aminobenzoic acid, and other essential metabolites of this group.

Indications: For use in the prophylaxis and treatment of multiple vitamin B deficiencies, as may result from a restricted or inadequate diet, if digestion or gastro-intestinal absorption is impaired, or if requirements are increased as in periods of high metabolic activity.

Administration: One to 3 capsules daily, or as directed by physician.

Form Supplied: Bottles of 100 and 1000.

Source: Walker Laboratories, Inc., Mount Vernon, N. Y.

DICALETS

Description: Multi-vitamin and mineral tablets, two of which, when taken three times daily, provide 100% of the recommended daily dietary allowances

(Continued on next page)

of vitamins A, D, B_1, B_2, C, nicotinamide, iron, calcium and phosphorus, plus vitamin B_{12}, folic acid, pyridoxine, and seven trace minerals.

Indications: As a multi-vitamin and mineral supplement for expectant and nursing mothers.

Administration: As directed by physician.

Form Supplied: Bottles of 100, 500, and 1000 tablets.

Source: Abbott Laboratories, N. Chicago, Ill.

NEW

GERATOSE

Description: Capsules, each containing: choline bitartrate, 250.0 mg.; desiccated liver, 125.0 mg.; and mixed tocopherol acetates equivalent to 2.5 International Units of vitamin E.

Indications: For the prevention and treatment of hypercholesterolemia, atherosclerosis, liver damage and in other conditions where lipotropic and nutritional factors may be beneficial.

Administration: Eight to 10 capsules per day, or as prescribed by physician.

Form Supplied: Bottles of 100 and 500.

Source: The E. L. Patch Company, Stoneham, Mass.

HELIOGEN

Description: Brand of ultraviodine, a mixture of chloramine-T, potassium iodide and approximately 25% of water soluble and halogen oxidizable organic material, which, upon solution in water, reacts and generates 25.0 mg. of nascent iodine and small amounts of ultra-violet radiations.

Indications: For the treatment and prophylaxis of oral and gingival infections such as Vincent's angina, gingivitis, pericoronitis, periodontoclasia, aphthous ulcers, etc. Also as a routine aid to oral hygiene, providing mild stimulation and maintaining tissue tone and health.

Administration: One or 2 tablets in four ounces of water one or more times daily, as a mouth rinse and gargle.

Form Supplied: Boxes of 50 individual foil-wrapped tablets.

Source: Heliogen Products, Inc., Long Island City, N. Y.

METHIUM CHLORIDE

Description: Tablets, containing 250.0 mg. hexamethonium chloride.

Indications: In treatment of hypertension. Is said to produce a marked reduction of blood pressure in most patients with benign essential arterial hypertension. Also reported to prolong life in malignant hypertension and materially alter the progress of the disease.

Administration: Orally, under supervision of physician; patient's progress must be carefully followed.

Form Supplied: Bottles of 100 and 500.

Source: Chilcott Laboratories, Inc., Morris Plains, N. J.

PNS

Description: Combination of pontocaine, neosynephrine, sulfamylon, bismuth subgallate, and balsam of Peru.

Indications: Designed for the treatment of inflammatory rectal conditions, including hemorrhoids. Also for application before and after operations.

Administration: As directed by the physician.

Form Supplied: Boxes of 12 suppositories.

Source: Winthrop-Stearns Inc., New York, N. Y.

SOMNADEX

Description: Tablets, each containing: pentobarbital sodium, 60.0 mg.; butabarbital sodium, 30.0 mg.; *d*-desoxyephedrine hydrochloride, 5.0 mg.

Indications: For use in ambulatory patients suffering insomnia due to anxiety, tension, etc., and in chronic disorders where dependable hypnosis without secondary depression is desirable.

Administration: Orally, 1 or 2 tablets half an hour before retiring, depending on severity of the case and the patient's response to the smaller dosage. Not for daytime use.

Form Supplied: Bottles of 100 and 500.

Source: Central Pharmacal Company, Seymour, Ind.

STAPHYLOCOCCUS AMBOTOXOID

Description: A dual antigen incorporating the detoxified exotoxin of staphylococcus and the endotoxic principles of the organisms themselves.

Indications: For treatment of conditions which are not permanently benefited by antibiotics or sulfonamides, such as chronic eczemas of the skin, otitis of the ear canal, infections of the hair follicles; to prevent recurrent attacks of boils, pustular acne, carbuncles, and other recurrent migratory localized staphylococcal abscesses of the soft tissues.

Administration: Intradermally, subcutaneously, or intramuscularly, as directed by physician.

Form Supplied: 5-cc. rubber-capped vials.

Source: E. R. Squibb & Sons, New York, N. Y.

PRESCRIPTION PRODUCTS

THEOMINAL M

Description: Tablets, combining 0.32 Gm. of theobromine and 15.0 mg. of luminal.
Indications: For the control of high blood pressure in arteriosclerosis, angina pectoris, arterial hypertension, and climacteric disorders. Especially suitable in treatment of hypertension cases where minimal sedation is desired.
Administration: As directed by physician.
Form Supplied: Bottles of 100 and 500.
Source: Winthrop-Stearns Inc., New York, N. Y.

VICON-A

Description: Capsules containing a combination of vitamins and minerals.
Indications: Vitamin-mineral supplement; for treatment of genetotrophic diseases, especially chronic alcoholism. Also recommended for the geriatric patient and those patients on restricted diets or those with poor dietary habits.
Administration: One capsule three times a day.
Form Supplied: Bottles of 100 and 1000.
Source: Meyer Chemical Co., Inc., Detroit, Mich.

WYAMINE SULFATE, INJECTION

Description: A new pressor substance for injection, chemically, *N*-methylphenyl-*tertiary*-butylamine sulfate.
Indications: Designed to safely increase blood pressure in emergencies resulting from a state of shock. Also in the treatment of patients with acute hypotension due to various causes, including surgical and medical emergencies.
Administration: Intravenously or intramuscularly, as directed by physician.
Form Supplied: 1- and 10-cc. vials.
Source: Wyeth, Inc., Philadelphia, Pa.

Other New Products

(Chemicals, clinical trial drugs, diagnostic aids, and equipment for the retail and hospital pharmacy)

CHOLIMETH FORTIFIED

The Central Pharmacal Company, Seymour, Ind., recently introduced a new form of its original choline-methionine tablet, Cholimeth. It is now fortified with inositol and vitamin B_{12} to provide full-scale lipotropic therapy. Cholimeth Fortified is indicated in the treatment of atherosclerosis, liver disease, diabetes, and other disorders where impaired fat metabolism may be a factor, and is supplied in bottles of 100, 500, and 1000 tablets.

CRYSTAMIN "120"

Crystamin "120," in sterile aqueous solution for intramuscular use, has been added to *The Armour Laboratories*, Chicago, Ill., list of vitamin B_{12} injectable. Previously announced were Crystamin "30" and Crystamin "60." Crystamin "120" contains 120 micrograms of crystalline B_{12} per cubic centimeter and is indicated in pernicious and nutritional anemias and in those macrocytic anemias associated with tropical and non-tropical sprue, gastrectomy postoperatively, idiopathic steatorrhea, celiac disease, gastrocolic fistula, and gastric carcinoma. It may be effective in megaloblastic anemia in infancy, pregnancy and the puerperal period, as an adjunct to lipotropic therapy in fatty degeneration of the liver, in anemia associated with cirrhosis of the liver, osteoarthritis and osteoporosis, and in alcoholic or diabetic polyneuritis. Crystamin "120" is supplied in 5-cc. vials.

CRYSTAMIN FORTÉ

Crystamin Forté, a new formulation of vitamin B_{12} designed to speed up absorption, was made available to wholesalers April 14 by *The Armour Laboratories*, Chicago, Ill. Crystamin Forté is provided in capsules each of which contains: vitamin B_{12} crystalline U.S.P., 100 mcg.; desiccated duodenum, 75.0 mg.; and folic acid, 1.75 mg. Crystamine Forté capsules, indicated in the treatment of the various macrocytic anemias (except pernicious anemia), tropical and non-tropical sprue, the macrocytic anemia of pregnancy, and the megaloblastic anemia of infancy, is recommended for the rather frequent patient who is unable to absorb B_{12}. It is available in bottles of 30 capsules.

DROMORAN HYDROBROMIDE

Dromoran Hydrobromide, the synthetic, morphine-like narcotic manufactured by *Hoffmann-La Roche*, Nutley, N. J., is now available in large-size bottles of 1000 oral tablets, 5.0 mg. each. Dromoran is now available on narcotic order in the following forms: hypodermic tablets, 5.0 mg., tubes of 20, bottles of 100 and 1000; oral tablets, 5.0 mg.; bottles of 25, 100, and 1000; ampuls, 1 cc., 5.0 mg., boxes of 12 and 100; and multiple-dose 10-cc. vials containing 5.0 mg. per cc.

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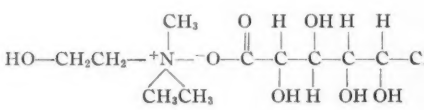
PRODUCTS RECENTLY ACCEPTED BY THE A. M. A. COUNCIL ON PHARMACY AND CHEMISTRY

Council descriptions of new drug products only are published regularly in THIS JOURNAL *as they are accepted. Rules upon which the Council bases its action appeared in the July (7:320) 1946 issue, and may be secured in pamphlet form upon request to the Secretary, Council on Pharmacy and Chemistry, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.*

CHOLINE GLUCONATE.—$C_{11}H_{25}NO_8$.—M. W. 299.32.—2 - (Hydroxyethyl) - trimethyl ammonium D-gluconate.—The structural formula of choline gluconate may be represented as follows:



Actions and Uses.—Choline gluconate has the same actions and uses as other salts of choline.

Dosage.—Adults: orally, 12 to 15 Gm. daily in three divided doses. To provide the equivalent of 1 Gm. of choline base, 2.46 Gm. of choline gluconate is required.

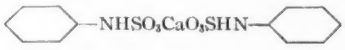
Tests and Standards.—
The following tests and standards apply to a 95% sample of choline gluconate, which is commercially unavailable. The commercially available material is a 58 to 62% aqueous solution.

Physical Properties: Choline gluconate is a straw colored, highly viscous mass possessing an amine-like odor and a bitter taste. It is soluble in water, sparingly soluble in alcohol, very slightly soluble in ether, and practically insoluble in benzene and chloroform. The pH of a 50% solution is between 5.0 and 6.0.

[For more information regarding Tests and Standards and for Dosage Forms, see *J. Am. Med. Assoc.*, **148:** 744 (1952).]

Solution Choline Gluconate: 473 cc. bottles. A flavored solution containing 0.62 Gm. of choline gluconate in each cubic centimeter. Commercial Solvents Corporation, New York.

CYCLAMATE CALCIUM.—Sucaryl Calcium (Abbott).—$C_{12}H_{24}CaN_2O_6S_2.2H_2O$.—M. W. 432.57.—Calcium cyclohexylsulfamate.—The structural formula for calcium cyclohexylsulfamate dihydrate may be represented as follows:



Actions and Uses.—Cyclamate calcium is a synthetic sweetening agent for use in the diet of diabetics and other patients who must restrict their intake of carbohydrates. It may be used by patients on low sodium diets. Cyclamate calcium is essentially nontoxic, but an excessive intake may produce a laxative effect. This should be controlled by regulation of the amount used in the diet.

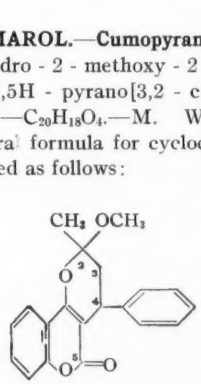
Dosage.—Cyclamate calcium is used in the form of a 15% solution for the preparation of foods or to sweeten beverages. 1.25 cc. (one-fourth teaspoonful) of a 15% solution is equivalent in sweetening power to about two teaspoonfuls of sugar (sucrose). A bitter taste becomes noticeable when the quantity in foods approaches 0.5%.

Tests and Standards.—
Physical Properties: Cyclamate calcium is a white, crystalline, practically odorless powder with a very sweet taste. It is freely soluble in water and practically insoluble in alcohol, benzene, chloroform and ether. The pH of a 10% solution is between 5.5 and 7.5.

[For more information regarding Tests and Standards and for Dosage Forms, see *J. Am. Med. Assoc.*, **148:** 744 (1952).]

Solution Sucaryl Calcium: 118.3 cc. bottles. A solution containing 0.15 Gm. of cyclamate calcium in each cubic centimeter. Preserved with 0.1% benzoic acid and 0.05% methylparaben. U. S. Patent 2,275,125. Abbott Laboratories, North Chicago, Ill.

CYCLOCUMAROL.—Cumopyran (Abbott).—3,4 - Dihydro - 2 - methoxy - 2 - methyl - 4-phenyl - 2H,5H - pyrano[3,2 - c][1] - benzopyran-5-one.—$C_{20}H_{18}O_4$.—M. W. 322.34.—The structural formula for cyclocumarol may be represented as follows:



Actions and Uses.—Cyclocumarol, a syn-

thetic anticoagulant related chemically and therapeutically to bishydroxycoumarin, produces its effect by lowering the blood concentration of prothrombin. It is useful, therefore, in the prophylaxis and treatment of intravascular clotting for the same purposes which have been recognized for other similar anticoagulants. See the monograph on Bishydroxycoumarin.

Cyclocumarol is approximately two to three times as potent as bishydroxycoumarin and its onset of effect is sometimes more rapid and often somewhat more prolonged. However, studies so far completed do not substantiate the view that cyclocumarol may be less toxic to small blood vessels and capillaries than therapeutically equivalent amounts of other anticoagulants or that its use minimizes frequent variations in the prothrombin level, which may occur with shorter-acting anticoagulants.

Cyclocumarol is effective orally and should be administered with the same precautions observed for similar anticoagulants to avoid overdosage and hemorrhage. Little or no gastrointestinal disturbance has been encountered with its use. Facilities should be available for making daily prothrombin determinations to prevent overdosage, for blood transfusion, and for parenteral administration of vitamin K for the treatment of overdosage. Patients should be regularly observed for evidence of bleeding.

Dosage.—Initially, 0.1 to 0.2 Gm. is administered orally depending on the size and condition of the patient and the prior blood prothrombin level. Somewhat smaller doses are usually sufficient for patients with cardiac decompensation or myocardial infarction. The onset of effect usually occurs within 24 hours and the full therapeutic effect on prothrombin activity is usually reached within 36 hours. After the initial dose, prothrombin activity is determined daily for the first 10 days to estimate the daily dosage to be administered at one time. If prothrombin activity exceeds 25%, a 12.5 to 50 mg. total daily dose is administered. Occasionally, it may be necessary to stop administration of the drug on days when the prothrombin activity is 25% or less.

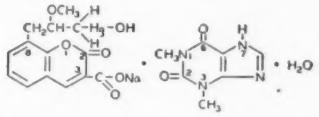
Tests and Standards.—

Physical Properties: Cyclocumarol is a white, crystalline powder with a slight odor. It melts between 164° and 168°. It is insoluble in water and slightly soluble in alcohol.

[For more information regarding Tests and Standards and for Dosage Forms, see *J. Am. Med. Assoc.*, **148**: 939 (1952).]

Tablets Cumopyran: 25 mg. and 50 mg. Manufactured by license from Wisconsin Alumni Research Foundation under U. S. Patent 2,427,529. Abbott Laboratories, North Chicago, Ill.

MERCUMATILIN SODIUM.—Cumertilin Sodium (Endo).—Sodium 8-(2′-methoxy-3′-hydroxymercuripropyl)coumarin - 3 - carboxylate (sodium mercumallylate) and theophylline.—$C_{14}H_{13}HgNaO_6.C_7H_8N_4O_2.H_2O$.—M. W. 699.03.—Mercumatilin sodium consists of sodium mercumallylate (the mercuri compound, $C_{14}H_{13}HgNaO_6$, mol. wt. 500.85) and of theophylline-U.S.P. in approximately molecular proportions. It is prepared by adding just enough sodium hydroxide solution to mercumatilin to effect solution. The salt is not isolated. An excess over 1 mole of theophylline may be added. The structural formula of mercumatilin sodium may be represented as follows:



Actions and Uses.—Mercumatilin sodium produces the same diuretic effect as other mercury-theophylline compounds, from which it differs slightly only in chemical structure. Its injection causes local irritation similar to that produced by the other organic mercurial diuretics which are suitable only for intramuscular or intravenous injection. See also general statement on Mercury Compounds.

Dosage.—Mercumatilin sodium is administered intravenously, or preferably intramuscularly. An initial dose of not more than 0.5 cc. (containing 132 mg. per 1 cc.) is recommended. Unless there is idiosyncrasy the subsequent average dosage recommended is 2 cc. intramuscularly, or 1 to 2 cc. intravenously, at biweekly intervals. Shorter or longer intervals may be used in accordance with the degree of edema or dehydration present. Injections should be made at different sites to avoid undue local irritation. Mercumatilin sodium should be employed with the same precautions as observed with other mercurial diuretics.

(*Continued on next page*)

Mercumatilin Sodium

• • • • • • • • • • • • *from page 335*

Tests and Standards.—
For description and standards for theophylline, see the U. S. Pharmacopeia under Theophylline.
Mercumallylic Acid ($C_{14}H_{14}HgO_6$, M. W. 478.86) used in the preparation of mercumatilin sodium responds to the following tests and standards.
Physical Properties: Mercumallylic acid is a white, odorless powder with a bitter taste. It melts with decomposition at about 190°. One gram dissolves in about 4.2 parts of sodium hydroxide T.S. It is slightly soluble in acetic acid; very slightly soluble in alcohol, chloroform and water; and practically insoluble in ether.
[For more information regarding tests and standards, and for dosage forms, see *J. Am. Med. Assoc.*, **148:** 1124(1952).]

Solution Cumertilin Sodium: 1 cc. and 2 cc. ampuls. An aqueous solution containing 0.132 Gm. of mercumatilin sodium, (equivalent to 39 mg. of mercury) and 11 mg. of excess theophylline in each cubic centimeter. Endo Products, Inc., Richmond Hill, N. Y.

NPH INSULIN.—NPH ILETIN (Lilly).—"NPH insulin is a preparation of crystals containing insulin, protamine, and zinc, suspended in a buffered medium. Zinc-insulin crystals are used in such quantity that each cubic centimeter of the preparation, when the precipitate therein is brought into uniform suspension, contains either 40 or 80 U. S. P. Units of insulin. Protamine is used in such quantity that the preparation contains not less than 0.3 milligram nor more than 0.6 milligram for each 100 U. S. P. Units of insulin; but the quantity is not less than that of the isophane ratio . . . and does not exceed that of the isophane ratio by more than 10%. The preparation contains, for each 100 U. S. P. Units of insulin, not less than 0.016 milligram and not more than 0.04 milligram zinc and not more than 0.85 milligram nitrogen. Disodium phosphate (calculated as Na_2HPO_4) is used in a quantity not less than 0.15% and not more than 0.25% (w/v). The *p*H of the finished preparation is not less than 7.1 and not more than 7.4. The preparation also contains either (*a*) not less than 1.4 and not more than 1.8% (w/v) glycerin and not less than 0.15 and not more than 0.17% (w/v) metacresol and not less than 0.06 and not more than 0.07% (w/v) phenol, or (*b*) not less than 0.42 and not more than 0.45% (w/v) sodium chloride and not less than 0.7 and not more than 0.9% (w/v) glycerin and not less than 0.18 and not more than 0.22% (w/v) meta-cresol. The protamine used is prepared from the sperm of mature testes of fish belonging to the genera *Oncorhynchus* Suckley, *Salmo* Linne, or *Trutta* Jordan and Evermann (Fam. *Salmonidae*)." Regulations promulgated Sept. 28, 1950, by the Administrator, Federal Security Agency: Certification of Batches of Drugs Composed Wholly or Partly of Insulin [15 Fed. Reg. 7363 (Nov. 2, 1950)].

NPH Insulin conforms to the regulations of the Food and Drug Administration concerning insulin-containing drugs.

NPH insulin injection has about one-half to one-fifth the protamine and about one-sixth to one-twelfth the zinc content of protamine zinc insulin injection.

Actions and Uses.—Essentially, NPH Insulin is a modification of protamine zinc insulin, but it differs in that it contains less protamine, less zinc, and is crystalline rather than amorphous in character. The pharmacologic action of NPH Insulin is similar to that of the other insulins. Its blood sugar lowering action is in an intermediate position between globin insulin and protamine zinc inuslin. The onset of action for NPH insulin usually begins within 2 hours after subcutaneous injection, whereas 4 to 6 hours are required for protamine zinc insulin. Its peak effect occurs 10 to 20 hours after administration, and its duration of action is 28 to 30 hours.

NPH Insulin may be mixed with regular insulin. Loss of quick action of regular insulin is less with NPH Insulin than with similar mixtures with protamine zinc insulin, because NPH Insulin contains less available protamine. Used in conjunction with regulation of diet and exercise, this form of insulin is of value in control of severe and labile diabetes. It is not recommended for use alone in patients who require quick acting insulin.

Dosage.—See Protamine Zinc Insulin.

Warning.—If administered after breakfast, danger of nocturnal hypoglycemia exists.

NPH Iletin: 10-cc. vials. 40 units or 80 units in each cubic centimeter. Preserved with 0.15% *m*-cresol and 0.06% phenol. Eli Lilly & Company, Indianapolis, Ind.

NPH Insulin: 10-cc. vials. 40 units or 80 units in each cubic centimeter. Preserved with 0.15% *m*-cresol and 0.06% phenol. E. R. Squibb & Sons, New York.

A NEW Antibiotic OINTMENT BASE

by S. F. Jeffries, Harold A. Nash, Robert L. Harmon, Doris C. Reynolds and Carl A. Bunde

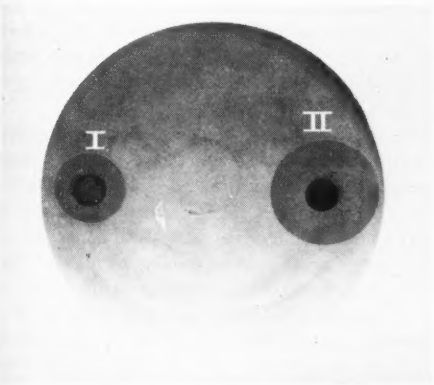


Fig. 1. Photograph of a seeded agar plate contrasting diffusion of bacitracin from a grease base (I) and from a polyethylene glycol diester base (II).

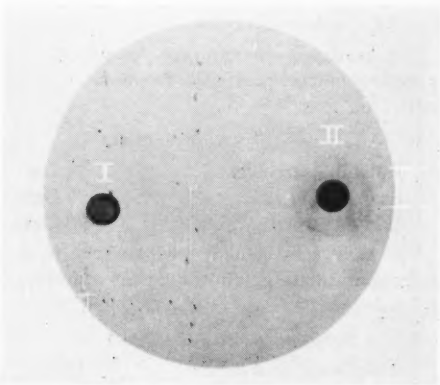


Fig. 2. Photograph of a seeded agar plate contrasting diffusion of polymyxin from a grease base (I) and from a polyethylene glycol diester base (II).

A new anhydrous ointment base in which combinations of bacitracin and polymyxin can be incorporated, and from which these antibiotics diffuse readily, has been compounded by the authors.

IN AN ATTEMPT to find an ointment base from which polymyxin and bacitracin would readily diffuse and in which both would be stable, a new base containing principally polyethylene glycol diesters has been compounded. Other components are Glycowax* and small amounts of petrolatum. Both polymyxin and bacitracin diffuse from this base much more readily than from a grease base or an emulsifiable grease base and both are stable in this base.

From the Research Laboratories, Pitman-Moore Co., Indianapolis, Indiana.

* Manufactured by the Glyco Products Co. Brooklyn 2, New York.

Desiring to take advantage of the broad antibacterial spectrum gained by combining polymyxin and bacitracin in the same ointment, a search for a suitable vehicle was undertaken. Although bacitracin is ordinarily used in ointments of the grease base type, polymyxin and bacitracin were found to diffuse very slowly from such ointments. This confirms the observations of Miller, Slatkin, and Johnson.[1] A search for bases permitting better diffusion of the antibiotics was limited by the instability of bacitracin in preparations containing water and by instability in the "Carbowaxes".[1,2]

Acting on the hypothesis that bacitracin instability in "Carbowax"-type bases may be due to free hydroxyl groups, the polyethylene glycol diesters, in which the hydroxyl groups are esterified, were investigated and found satisfactory. Diffusibility of both polymyxin and bacitracin was much better than from the grease-type bases and both antibiotics were stable in this vehicle.

(Continued on next page)

Ointment Base

••••••••••••••*from page 337*

EXPERIMENTAL

Ointments Used.—Of the 25 different ointment bases tested as vehicles, the following may be taken as typical of different types and were tested more extensively.

A. A "Carbowax" ointment

Carbowax 4000	16 Gm.
Carbowax 1540	16 Gm.
Carbowax 1000	16 Gm.
Polyethylene glycol 400 W	52 Gm.

The bacitracin content was brought to 500 units/Gm. and the polymyxin B content to 10,000 units/Gm.

B. An emulsifiable grease ointment

Anhydrous wool fat	20 Gm.
Span 20	5 Gm.
White petrolatum	75 Gm.

The bacitracin content was brought to 500 units/Gm. and the polymyxin B content to 10,000 units/Gm.

C. A grease ointment

Anhydrous wool fat	15 Gm.
Liquid petrolatum	32 Gm.
White petrolatum	53 Gm.

The bacitracin content was brought to 500 units/Gm. and the polymyxin B content to 10,000 units/Gm.

D. A polyethylene glycol diester ointment ("Fuzene"[1] base)

Liquid petrolatum	10 Gm.
White petrolatum	10 Gm.
Glycowax 3932	10 Gm.
Polyethylene glycol 400 distearate	10 Gm.
Polyethylene glycol 400 dilaurate	60 Gm.

The bacitracin content was brought to 435 units/Gm. and the polymyxin B content to 8,700 units/Gm.

Stability.—Measurements of the concentration of antibiotics remaining in the ointments after storage involved extraction of the antibiotics from the base and assay of the solutions so obtained as outlined in the F. D. A. regulations.[3,4,5,6] A slight modification was made to permit the use of discs rather than cylinders on the agar plates.

Results of stability studies are set forth in Table I. These results show, in a few cases, apparent increases in polymyxin potency on storage. These are thought not to be real but simply to be reflections of the error incident to any biological assay method.

Polymyxin and bacitracin were found to be only slightly less stable in the polyethylene glycol diester ointment at 37° than they were at 25°. Assay results after 4½ months' storage of ointment at 37° were 415 units/Gm. of bacitracin and 9,625 units/Gm. of polymyxin B.

Diffusibility.—Diffusion of the antibiotics from the ointment bases was measured by two different techniques. One technique was a modified agar plate assay (Method A) while the other (Method B) involved direct measurement of antibiotic diffusing into water from a uniform layer of the ointment.

In using Method A, the ointments were melted and pipetted into steel cylinders of 8-mm. diameter lightly embedded in seeded agar. Uniformity of depth to which the cylinders were embedded was insured by dropping them from a mechanical dropping device.[7] After incubation at 37°, the radii of the zones of inhibition about the cylinders were measured. An attempt was made to give the zone sizes increased quantitative significance by comparing them with the zones yielded by water solutions of the antibiotics placed in cylinders in the same manner. A graded series of

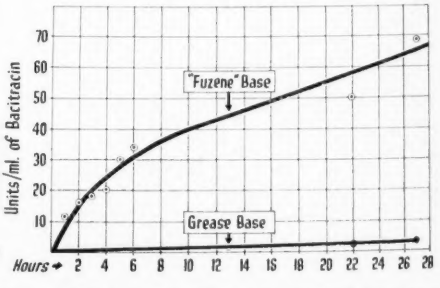


Fig. 3. Diffusion of bacitracin into distilled water from grease and polyethylene glycol diester ("Fuzene") bases.

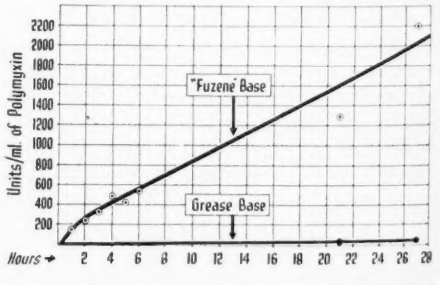


Fig. 4. Diffusion of polymyxin into distilled water from grease and polyethylene glycol diester ("Fuzene") bases.

[1] Trade mark.

TABLE I.—STABILITY OF BACITRACIN AND POLYMYXIN IN OINTMENTS AT 25°

Ointment	Theoretical Conc. in Units/Gm.		Conc. after 1 Day in Units/Gm.		Conc. after 30 Days in Units/Gm.		Conc. after 250 Days in Units/Gm.	
	Bacitracin	Polymyxin	Bacitracin	Polymyxin	Bacitracin	Polymyxin	Bacitracin	Polymyxin
A	500	10,000	280	11,000	85	11,200		
B	500	10,000	450	10,000	130	9,400		
C	500	10,000	620	11,150	630	9,400		
D	435	8,700	500	9,550	430	9,700	463	10,100

TABLE II.—DIFFUSIBILITY OF BACITRACTIN AND POLYMYXIN FROM OINTMENTS

	Bacitracin Diffusibility		Polymyxin Diffusibility	
	Radius of Zone of Inhibition in Mm.	Equivalent to Water Solution Containing Designated Conc. in Units/Ml.	Radius of Zone of Inhibition in Mm.	Equivalent to Water Solution Containing Designated Conc. in Units/Ml.
A	[a]		7.0	8,000
B	[a]		0	<156
C	4.2	3.6	0	<156
D	6.6	16.8	3.7	930

[a] Bacitracin destruction was so very rapid in these bases (see Table I) that studies of bacitracin diffusibility were not considered warranted.

concentrations of the antibiotic in water solution was placed in cylinders simultaneously with the ointment, and a standard curve prepared from these results. Zones of inhibition yielded by diffusion from the ointment bases were referred to the standard curve and the relative rate of diffusion was expressed in terms of the water solution giving a zone of inhibition of the same size under the same conditions.

Plates used to measure bacitracin diffusion were seeded with *Micrococcus flavus* at the rate recommended by the F. D. A.[5] Plates used to measure polymyxin diffusibility were seeded with a 20-hr. culture of *Brucella bronchiseptica* in trypticase soy broth. The 20-ml. of leveling agar used in each plate contained 2% agar, and the 4 ml. of seed agar, 1.5% agar in each case. Bacitracin assay medium (F. D. A.)[5] was used in the bacitracin plates and trypticase soy agar in the polymyxin plates.

Method B was undertaken to gain a more quantitative picture of the actual rate of diffusion from the bases as a function of time. Measurements were made of the concentration of antibiotic found in distilled water solutions in contact with the ointments for various periods of time. The ointments were melted and 10 ml. of ointment was used to cover the bottom of a Petri dish, giving a layer of 1.5-mm. depth. This ointment layer was covered with 15 ml. of distilled water. The plates were placed in the 37° incubator in a humidified vessel. The atmosphere in the vessel was kept saturated to prevent loss of the water layer by evaporation. To determine the concentration of antibiotic in the water layer after various periods of time, standard paper assay discs were dipped in the water layer, drained

(Continued on page 368)

Authors' Summary

A new base containing principally polyethylene glycol diesters has been prepared as a carrier of bacitracin and polymyxin.

Both bacitracin and polymyxin were stable in this base and both diffused from it much more readily than from a grease base.

The instability of bacitracin in "Carbowax" bases has been confirmed.

The poor rate of diffusion of polymyxin from grease-type bases was not greatly improved by adding wetting agents.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Isotonic Solutions:

a simplified method of preparation

*by Salvatore J. Greco**

WITHIN the last few years much has been done to simplify the calculations for the preparation of isotonic and isotonic buffered solutions through the use of diluting solutions. White and Vincent[1] have provided us with a simple method derived from sodium chloride equivalents. Sprowls[2] published a table of figures showing the volume of water required to dissolve a 1% concentration of various drugs in order to prepare one fluidounce of isotonic solution.

While these methods are relatively simple, it is the author's opinion that they can be simplified even further by a modification of Sprowls' table, using the equation recommended by White and Vincent. The equation is as follows:

$$V = W \times E \times v$$

where:

V = the volume of solution that the medicinal agent will make isotonic.
W = the weight of medicinal agent to be dissolved.
E = the sodium chloride equivalent of the medicinal agent.
v = the volume in cc. (or minims) occupied by 1 Gm. (or 1 grain) of sodium chloride in isotonic solution.

By substitution in the equation, where W = 1 Gm. and v = 111.1 cc., it is possible to determine how many cc. of isotonic solution can be obtained from 1 Gm. of any given drug. These values appear in Table I. The values in Table I can be used in the calculations for all types of isotonic solutions, since it is generally accepted that a 0.9% NaCl solution is isotonic with tears, as well as with nasal secretions and blood serum.[3,4]

Application of Table I

In order to prepare an isotonic or an isotonic buffered solution, the pharmacist proceeds as shown in Table I.

The amount of drug is obtained from the prescription, or, if it is expressed in terms of percentage, it is determined by a simple calculation. This figure multiplied by the figure from Table I for that given drug, denotes the amount of isotonic solution, which may be prepared from the required amount of drug. After preparing the calculated volume of solution, it is made up to the desired volume with an isotonic or an isotonic buffered diluting solution, whichever is required in the prescription.

While it is not expected that the pharmacist will be able to measure accurately a fractional part of a cc. in a graduated cylinder, it has been proved by White and Vincent[1] that the use of a class A prescription balance and an appropriate cylindrical graduate can provide sufficient accuracy for practical purposes.

Author's Summary

A simplified method for preparing isotonic and isotonic buffered solutions through the use of diluting solutions is presented.

Calculations have been reduced to a minimum by this method.

A table which shows the amount of isotonic solution that can be prepared from 1 Gm. of any given drug and distilled water is presented.

* Assistant Professor of Pharmacy, The George Washington University, Washington, D. C.

TABLE I

THE AMOUNT OF ISOTONIC SOLUTION WHICH CAN BE PREPARED FROM 1 GM. OF VARIOUS SUBSTANCES AND DISTILLED WATER

1 Gm. of:	Volume,* Cc.	1 Gm. of:	Volume, Cc.
Amphetamine Sulfate	22.2	Physostigmine Salicylate	21.1
Amylcaine Hydrochloride	22.2	Physostigmine Sulfate	13.3
Antipyrine	18.9	Pilocarpine Hydrochloride	24.4
Apothesine Hydrochloride	21.1	Pilocarpine Nitrate	23.3
Atropine Sulfate	15.6	Potassium Chloride	93.3
Boric Acid	61.1	Potassium Iodide	42.2
Butacaine Sulfate	11.1	Potassium Nitrate	66.7
Caffeine	14.4	Potassium Phosphate (Monobasic)	44.4
Calcium Chloride (No H_2O)	81.1	Procaine Hydrochloride	26.7
Calcium Gluconate	15.6	Propadrine	34.4
Calcium Lactate	23.3	Quinine Hydrochloride	17.8
Camphor	23.3	Quinine and Urea Hydrochloride	28.9
Chlorobutanol	20.0	Silver Nitrate	43.3
Cocaine Hydrochloride	21.1	Sodium Acetate (No H_2O)	82.2
Cupric Sulfate	16.7	Sodium Benzoate	50.0
Dextrose	17.8	Sodium Bicarbonate	76.7
Diothane Hydrochloride	14.4	Sodium Biphosphate	50.0
Emetine Hydrochloride	15.6	Sodium Borate	47.8
Ephedrine Hydrochloride	31.1	Sodium Bromide	68.9
Ephedrine Sulfate	21.1	Sodium Cacodylate	33.3
Epinephrine Hydrochloride	28.9	Sodium Carbonate, Monohydrated	75.5
Ethylhydrocupreine Hydrochloride	16.7	Sodium Citrate	35.6
Ethylmorphine Hydrochloride	17.8	Sodium Hypophosphite	60.0
Eucatropine Hydrochloride	20.0	Sodium Iodide	42.2
Fluorescein Sodium	21.1	Sodium Lactate	57.8
Glycerin	38.9	Sodium Nitrate (No H_2O)	68.9
Homatropine Hydrobromide	21.1	Sodium Phosphate (No H_2O)	56.7
Hyoscine Hydrobromide	14.4	Sodium Phosphate ($2H_2O$)	45.6
Hyoscine Hydrochloride	16.7	Sodium Phosphate ($7H_2O$)	30.0
Iodophthalein Sodium	13.3	Sodium Phosphate ($12H_2O$)	22.2
Lactose	12.2	Sodium Salicylate	44.4
Larocaine Hydrochloride	20.0	Sodium Sulfate	31.1
Magnesium Chloride ($6H_2O$)	46.7	Sodium Sulfite	64.4
Magnesium Sulfate	22.2	Sodium Thiosulfate	34.4
Menthol	23.3	Strong Silver Protein (Protargol)	4.4
Mercuric Chloride	13.3	Sucrose	11.1
Mercuric Cyanide (No H_2O)	15.6	Sulfadiazine Sodium	23.3
Metycaine Hydrochloride	22.2	Sulfanilamide	22.2
Mild Silver Protein	21.1	Sulfathiazole Sod. sesquihydrate	21.1
Morphine Hydrochloride	16.7	Syntropan	15.6
Morphine Sulfate	13.3	Tannic Acid	3.3
Neosynephrine Hydrochloride	31.1	Tetracaine Hydrochloride	21.1
Nupercaine Hydrochloride	16.7	Tutocaine Hydrochloride	22.2
Phenacaine Hydrochloride	17.8	Zinc Chloride	66.7
Phenobarbital Sodium	30.0	Zinc Phenolsulfonate	16.7
Phenol	38.9	Zinc Sulfate	16.7

* Calculated from sodium chloride equivalents as listed by White and Vincent.[1]

Examples

1. Ephedrine Sulfate 1.00
   Distilled Water *q.s.* 30.00
   M. ft. isotonic nose drops.

Reference to Table I shows that 21.1 cc. of isotonic solution can be prepared from 1 Gm. of ephedrine sulfate. Therefore, 1 Gm. of ephedrine sulfate is dissolved in sufficient distilled water to make 21.1 cc. A sufficient amount of an isotonic solution such as isotonic sodium chloride solution (0.9% NaCl) or isotonic dextrose solution* is added to make 30 cc.

2. Atropine Sulfate 0.08
   Distilled Water *q.s.* 15.00
   M. ft. isotonic eye drops.

Table I shows that 1 Gm. of atropine sulfate will make 15.6 cc. of isotonic solution; therefore, 0.08 Gm. will make 1.25 cc. of isotonic solution ($0.08 \times 15.6 = 1.25$). The atropine sulfate is dissolved in sufficient water to make 1.25 cc. Sufficient isotonic sodium chloride solution is added to make 15 cc.

Through the use of this method, it is not necessary to convert the concentration of atropine sul-

(Continued on page 354)

* One Gm. of dextrose in 17.8 cc. of aqueous solution (5.6%) is isotonic. See Table I.

FROM THE SECRETARY'S DIARY FOR APRIL, 1952

3rd The springtime "Cherry Blossom" visitors are in Washington again and we enjoy calls from A. PH. A. members among them. These are busy days for the staff with an occasional diversion such as the visit of Queen Juliana who, like all other celebrities arriving at Washington Airport, must come past our building en route to the Capitol or White House—and we all love a parade.

9th Late afternoon arrival yesterday at Boca Raton did not prevent opportunity to see and talk to many people at the A. P. M. A. Convention, among them, Austin Smith, Allen Newcomb, Bob Swain, and the very capable President Howard Fonda and Secretary J. D. Closs of the A. P. M. A. This morning addressing A. P. M. A. Convention briefly on "A Century of Progress in American Pharmacy."

10th Stopped off at Washington en route from Boca Raton to Philadelphia. Met Staff members at Union Station for briefing and then continued journey to Philadelphia where the local Convention Committees were in session at Temple University College of Pharmacy, with General Chairman Muldoon and President Francke also in attendance. Conferring with this fine group of workers until dinner time. Now addressing Philadelphia Branch members at their annual Past-Presidents' Dinner and then back to Washington. Sorry to miss President Francke's address to the Branch. Discussing hospital pharmacy problems with Miss Niemeyer en route.

14th To-day conversing with Army and Air Corps medical brass on the status of pharmacists. Also welcoming Mr. F. B. Gorrell who will take over as controller and office manager, succeeding W. P. Nowell who returns to government service. This evening, in company of the "Better Half," who is a member of the D. A. R., attending the opening session of the Sixty-first Continental Congress of the Daughters of the American Revolution, as guest of the President-General of that patriotic organization, in recognition of the A. PH. A. Centennial—a colorful and thrilling ceremony with male attendance strictly limited.

16th Yesterday and to-day a fine visit with Professional Relations Committee Chairman Ronald Robertson who came from Spokane to attend some meetings with A. M. A. officials in Chicago and then to Washington to talk over various phases of our professional relations program here with the A. PH. A. staff. At dinner with Messrs. Zerbe and Gorrell discussing JOURNAL problems and future schedules.

17th To-day a meeting of the Committee on Public Relations including Bert Mull, John Lynch, and George Archambault, who were here to discuss broad policies and participation of N. W. D. A. in National Pharmacy Week with Charles Doerr. Also discussing exhibits with Miss Niemeyer and Mr. Zerbe and winding up with considerable progress recorded.

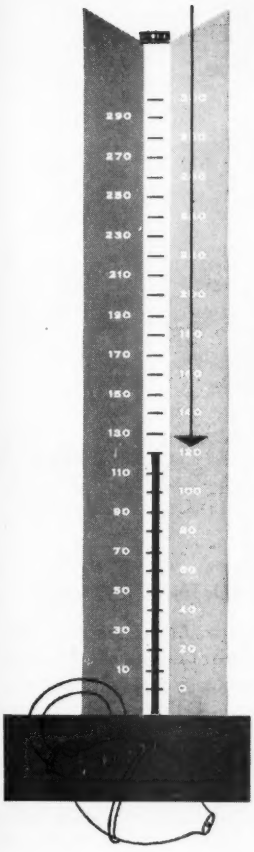
21st Busy with review of tax and other legal matters requiring conferences with our attorneys. Also conferring with A. M. A Washington representative Dr. Joseph Lawrence on current problems, including fluoridation of water supplies, aid to education, prescription regulations and other matters of mutual interest.

24th The annual meeting of the American Foundation for Pharmaceutical Education to-day at the Biltmore in New York. A fine attendance of top drug industry and pharmacy profession personnel with interesting discussions of the future of the Foundation in aiding Colleges of Pharmacy. Back to Washington on the new and beautifully equipped "Afternoon Congressional."

25th All day with the Honorary Consultants of the Bureau of Medicine and Surgery of the U. S. Navy. Surgeon-General Lamont Pugh and his staff posed some difficult problems and were excellent hosts at a buffet luncheon. Off to New York on the 7:00 p. m. train.

26th Most of this day meeting with representatives of 18 A. PH. A. Student Branches from Districts 1 and 2 at St. John's University College of Pharmacy. It was a meeting to inspire even skeptics of the future of pharmacy. The papers were outstanding and the answers to questions were handled splendidly. With an attendance of nearly 600 students and a well-arranged and splendidly-directed program one got the distinct impression that this group knows where it is going and what it wants pharmacy of the future to be.

29th To-day addressing the American Drug Manufacturers Association at the Homestead in Hot Springs, Virginia, on "A Century of Progress in American Pharmacy." Here were gathered the leaders of the drug industry under the presidency of Carlton Palmer, Chairman of the Board of E. R. Squibb & Sons.



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250 mg. scored tablets in bottles of 100 and 500.

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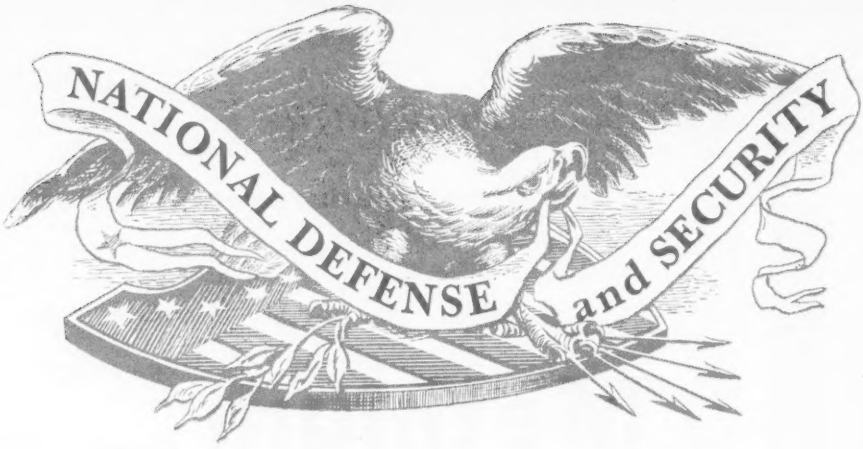

ROTC PHARMACISTS TO TRAIN

More than 1500 members of Army Reserve Officers' Training Corps units at medical, dental, veterinary, and pharmacy schools throughout the country will participate in professional and field training this summer at nine Army medical installations, the Army announced May 2. The group will be the second largest to take summer training since the establishment of the Army Medical Service ROTC program.

Forty-eight medical schools and 18 dental schools in the United States will send ROTC units to this summer's encampments. The 150 veterinary students, drawn from six institutions, and 100 pharmacy students, from four schools of pharmacy, will begin their six-week training at Brooke Army Medical Center, Fort Sam Houston, Texas, on June 21.

Six weeks' training in field medicine and clinical practice, beginning June 14 and July 26, will be given at the following Army hospitals to medical and dental ROTC students who have served a year's active duty in the Armed Forces.

Brooke, Fort Sam Houston, Texas; Walter Reed, Washington, D. C.; Fitzsimons, Denver, Colorado; Letterman, San Francisco, California; Percy Jones, Battle Creek, Michigan; and Valley Forge, Phoenixville, Pennsylvania.

In addition, Fitzsimons Army Hospital has scheduled a special six-week camp beginning May 12 for 22 medical students unable to attend either of the regular classes. Madigan Army Hospital, Tacoma, Washington, will train only one class beginning July 26.

ROTC enrollees without previous military service will receive their instruction, also beginning July 14 and July 26, at U. S. Army hospitals at Fort Benning, Georgia, and Fort Bragg, North Carolina. They will divide their time equally between field training and clinical clerkship work in the hospital. Students with prior service spend only two weeks in the field and four weeks in professional activities.

MILLION TRAINED IN FIRST AID

Almost a million First Aid certificates were issued in the United States during the first nine months of 1951, according to a recent release of the American Red Cross. Unfortunately, various states report differently, and complete figures for the entire year are not yet available. At the end of 1950 there were approximately 440,000 holders of certificates in the country; by October 1, 1951, there were nearly 1,400,000 people trained in modern first-aid techniques. The Red Cross reported that this number would be even greater, except for the acute shortage of qualified teachers to handle the thousands applying for the course.

IMPROVING COMMUNITY HEALTH

Community health protection cannot be achieved from above, according to a new pamphlet just issued by the National Health Council, the coordinating agency of the nation's voluntary and governmental health agencies. "Your Neighbor's Health is Your Business" points out that while both the federal and state governments can—and generally do—help, "the real job of winning health protection for your family and your community rests upon the citizen and his neighbors." The pamphlet further points out that "it only takes one person to get the ball rolling," and presents case histories of how some communities have successfully inaugurated health departments. That there is a need for improve-

(Continued on page 346)

SCISSORS ARE OUT!

The cover does the cutting!

As you know, customer acceptance depends on ease of use as well as product quality.

Johnson & Johnson made the first zinc oxide adhesive tape in the late 1880's. And through the years the quality of this company's product—Red Cross* Adhesive Tape —has been continually improved.

Today, Red Cross Adhesive Tape is recognized as the standard of excellence by doctors, nurses, and hospital authorities. In American homes this tape is preferred over all other brands.

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And remember this, Mr. Druggist. By demonstrating to your customers how this cover that does the cutting works, you can cut yourself a good slice of profits.

The most trusted name in surgical dressings...

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1. Pull out adhesive tape, close cover.

2. Grasp tape near cutting edge.

3. Rip upward.

*This product has no connection whatever with American National Red Cross.

Defense & Security

• • • • • • • • • • • • *from page 344*

ment is shown by the fact that only 27 counties and five cities actually have their full quota of doctors, nurses, and auxiliary helpers needed to meet the minimum standards of the American Public Health Association. Copies of the booklet, at 25¢, from the Public Affairs Pamphlets, 22 East 38 St., New York 16, N. Y.

GOVERNMENT AGENCIES PLAN DEFENSE

In an Executive Order dated April 17, 1952, President Truman ordered all Federal Departments and agencies to prepare civil defense plans against the event of an emergency. In addition to plans for the effective protection of personnel and records, the order also called for plans assuring the continuity of the department or agency work during the period following the start of the emergency. Each department or agency was directed to prepare these plans in full cooperation with the FCDA.

SELECTIVE SERVICE TO CALL 41,000

In June, 10,000 men, and in July, 31,000 men will be inducted into service and assigned to the Army, according to the Department of Defense. This will mark the first time since August, 1951 that the Marine Corps has not requested additional personnel. The Corps now estimates that voluntary enlistments will be sufficient to maintain its strength. The Department of Defense also announced that the quotas for August and September will approximate the July call of 31,000.

ARMY BLOOD COLLECTIONS SHOW INCREASE

Late in April, the Department of Defense announced that there had been a slight increase in blood donor collection. The week ending April 20 showed an increase of 5122 pints over the previous week, but the total collected, 68,134 pints, was still considerably below the 75,000 quota if the 3000 pint drive is to be successful. Between September 10, 1951 and late April, 2,097,939 pints were collected.

FCDA MAKES ANNUAL REPORT

Federal Civil Defense Administrator Millard Caldwell reiterated his previous statement that "we have made progress but far from enough" in his first annual report to the President and Congress on the FCDA. Although every state, territory, target area, and community has at least the nucleus of a civil defense unit, none is now sufficiently well organized to meet the impact of enemy attack. Mr. Caldwell pointed out in the 120-page report that the American public, unfortunately, will respond wholeheartedly to civil defense only when they believe in its immediate necessity. At present, such widespread belief does not exist, thus greatly hampering progress of the organization. Mr. Caldwell also stated, as he has in the past, that it is idle to complain of public apathy when official apathy is obvious. Among the list of achievements of FCDA for 1951 was listed the stockpiling of medical supplies. Total investment, by June, 1952, will be about $90,000,000. During the year, more than 56 million copies of leaflets and pamphlets, covering all phases of civil defense, were distributed to the public.

ON SEEING THE BOMB

What an atomic bombing might mean to the average citizen is shown in the following comments made by several observers at the April 22 atomic explosion in Nevada. FCDA invited a group of key defense personnel to witness the explosion.

"The heat flash on my face felt like I had passed it over a gas flame. And this was at a distance of ten miles."

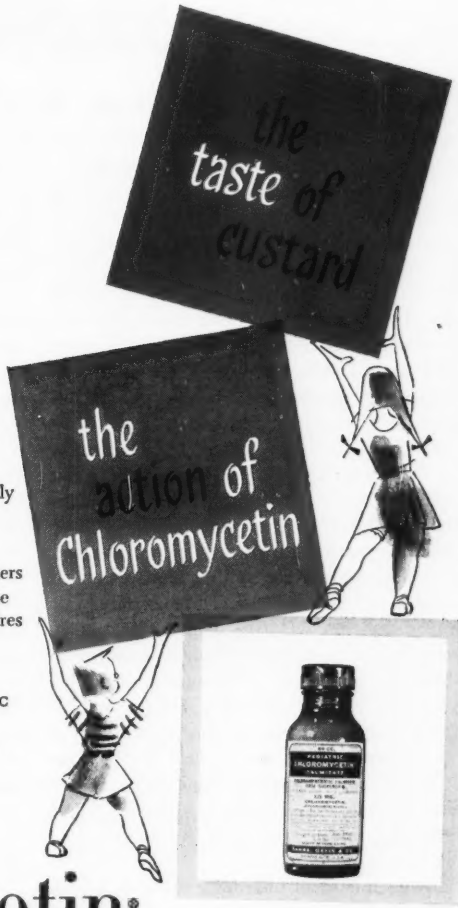
Co. John Fondahl, Director, Civil Defense, District of Col.

"I made a test of some of our Civil Defense education. I sheltered my eyes by burying my head. It works. Also I had part of my body exposed and a part of it sheltered by rock. The unsheltered portion received an intense sensation of heat."

Mayor Frank P. Ziedler, Milwaukee

"I am definitely convinced that all target areas must revise their thinking considerably upwards with regard to potential damage and casualties."

Col. John W. Chapman, State Civil Defense Director, New Mexico



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THE PRESIDENT'S PAGE

A SPECIAL MESSAGE TO THE MEMBERS. FRO[illegible] AMERICAN PHARMACEUTICAL ASSOCIATION

by Don E. Francke

It would be difficult, if not impossible, to maintain a Centennial year travel schedule were it not for the airplane. I appreciated this more fully during the past several days when my schedule called for me to be at St. John's University in Brooklyn on Saturday to attend the outstanding Convention of Student Branches of Districts 1 and 2, in Chicago on Sunday to talk to the students of District 4, in Savannah on Monday and Tuesday to enjoy the Southern hospitality of the Georgia Pharmaceutical Association, in Detroit on Wednesday to speak to the progressive Michigan Academy of Pharmacy, and in Buffalo on Thursday to participate in the excellent Annual Alumni program of the University of Buffalo College of Pharmacy.

One of the greatest thrills of presidential travel is the opportunity to see at first hand the keen enthusiasm and high professional concepts of our pharmacy students. During the past few weeks, I have attended meetings of student branches at the Southern College of Pharmacy, the Universities of Georgia and Michigan, as well as the students' convention of Districts 1 and 2 and the District 4 convention held at the University of Illinois College of Pharmacy. All of these meetings were extremely stimulating and reemphasized for me the great future our profession has.

Today's students of pharmacy understand the significance of what the A. Ph. A. is trying to accomplish far better than do most of us who are now in practice. As a result, the A. Ph. A. is bound to increase in strength and influence as our students constantly swell the ranks of the Association and continue as active members after graduation. It was, indeed, a farsighted action when more than twenty years ago, the Association initiated its system of student branches and great credit is due to those responsible for the adoption of this policy. One of the very tangible results of this action is that today there is a great demand throughout the United States for the establishment of additional local branches of the A. Ph. A. This has been brought about by the desire of former student members to continue in an A. Ph. A. branch and to help carry forward the objectives of our Association. With more than 10,000 members, our student branches serve as the training ground which is creating a greater spirit in pharmacy—a spirit which emphasizes the fact that pharmacy is a profession as well as a business.

One of the principal tasks of a great organization is to bring about a gradual change in the direction of the policy of a group so that it can maintain its proper role under constantly changing conditions. One aspect of this task is the development of the spirit of the group in such a manner that it can readily adapt to new situations. I believe we have been particularly successful in creating a splendid professional spirit among our students—those who soon will become the leaders of our profession. Our student members represent one of the Association's greatest potentials and they should be encouraged in every way possible. I hope that means will be found to further encourage students by providing for them some type of a forum at the national conventions of the A. Ph. A. This would be a further step which would cement more closely the relationships between practitioners of tomorrow and the A. Ph. A.

Centennial Progress

Progress continues in the immense task of planning the Centennial Celebration. Recently I attended a meeting of the Local Planning Committee in Philadelphia when this group, under the chairmanship of Paul Wilcox, reviewed progress to date with Dean Muldoon and Dr. Fischelis, Chairman and Director, respectively, of the Committee on the Centennial Convention. One of the special features of the Centennial Celebration is to be a scientific color television broadcast demonstrating pharmaceutical technics and developments. This phase of the program is being worked out by Dean Sprowls of Temple and Assistant Dean Tice of the Philadelphia College of Pharmacy and will originate in the college laboratories and be broadcast directly to the convention hotel.

DOSAGE: millionths of a gram

RESPONSE: millions of red blood cells

RUBRAMIN B12

Rubramin supplies vitamin B_{12}, the most potent anti-anemia substance known, in potencies to meet every need:

15 MICROGRAMS PER CC......1 cc. ampuls

30 MICROGRAMS PER CC......1 cc. ampuls
5 cc. vials
10 cc. vials

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Also available: Solution Rubramin Crystalline (Squibb Crystalline Vitamin B_{12} Solution) in 1 cc. ampuls, 15 micrograms of crystalline vitamin B_{12} per ampul, and 10 cc. vials, 30 micrograms of crystalline vitamin B_{12} per cc.

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World Health

• • • • • • • • • • • • *from page 328*

by greatly improving the clinical outlook. The physicians are using chloromycetin, terramycin, and aureomycin. Drug manufacturers of the United States and of Italy donated the first supplies of these drugs to WHO.

Again, in the Hejaz, Saudi Arabia, the Moslem Pilgrimage of 1950 to Mecca and Medina was accomplished without a single outbreak of epidemic disease. This was the result of preliminary work of the WHO with the Public Health Department of Saudi Arabia. Traditionally, the Pilgrimage has been a source of serious epidemics in Europe, Asia, Africa, and the Middle East. There were 500,000 pilgrims last year, and only 120 deaths—none from an epidemic disease.

In India, Afghanistan, Pakistan, Thailand, and Iran, malaria control is going forward. At Istanbul and New Delhi, modern antituberculosis centers have been set up. Local physicians and nurses are trained there. Others are scheduled for Thailand, El Salvador, Burma, Ceylon, and Pakistan. The health programs of the Economic Cooperation Administration's Mission to Southeast Asia are developing similar services to combat malaria, venereal disease, yaws, and other prevalent infections.

The American people have risen to the challenge and promise of world health improvement. Their concern is reflected not only by Congressional support of our own foreign aid programs and international agencies such as WHO, but also by the personal participation of hundreds of American experts. The public health profession is proud of its privilege to join with its colleagues in other countries in this great crusade for world health, and world peace.

I believe we all subscribe to the faith enunciated by the President's International Development Advisory Board under the chairmanship of Mr. Nelson A. Rockefeller. The Board says: "Miracles are not accomplished overnight. . . . The apathy that accompanies malnutrition and ill health is harder to overcome than the causes which produced it. What is really important is that we do now what can be done with the means available. To do nothing is to invite despair. To act is to hope."

JUSTIN L. POWERS TO SERVE ON WORLD HEALTH COMMITTEE

Justin L. Powers, Chairman of the Committee on National Formulary and Editor of the *Scientific Edition* of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, has been named as a member of the World Health Organizational Expert Advisory Panel on the International Pharmacopoeia. Membership in the panel is an honorary appointment for a maximum period of five years, unless renewed.

In addition to attendance at special meetings called to discuss pharmacopoeia matters, members of the panel are expected to advise the WHO on important developments in their own country that are pertinent to the publication. Prior to Dr. Powers' appointment, three other Americans had been announced as members of the Expert Advisory Panel. These are: Lloyd Miller, Director of Revision of the U. S. Pharmacopeia; Charles W. Crawford, U. S. Commissioner of Food and Drugs; and Professor E. Fullerton Cook, former Chairman of the U. S. P. Revision Committee.

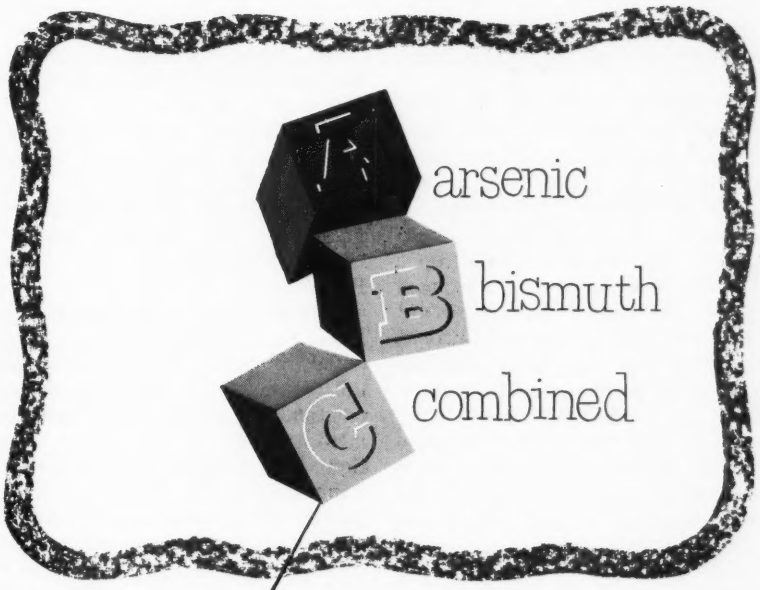
No date has as yet been set for the first meeting of the American members of this Expert Advisory Panel.

O. L. ANDERSON NAMED TO U. S. PUBLIC HEALTH POST

Dr. Otis L. Anderson has been appointed Chief of the Bureau of State Services, Public Health Service, according to an announcement early in May by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service of the Federal Security Agency. Dr. Anderson succeeds Dr. Joseph W. Mountin, who died suddenly on April 26.

A former associate chief of the Bureau of Medical Services, Dr. Anderson will direct the broad Federal-State and interstate programs of the Service. These programs encompass most of the public health activity carried on in cooperation with the States and with local communities. They include work in the fields of tuberculosis, venereal diseases and chronic diseases, water pollution control, occupational health activities and vital statistics, along with the administration of the Public Health Service grant-in-aid program to States.

The bureau also administers three field stations: The Communicable Disease Center at Atlanta, Ga.; the Environmental Health Center, Cincinnati; and The Arctic Health Center, Anchorage, Alaska.



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Straight from Headquarters

The First Ten Years *from page 315*

cational program in general, rather than the immediate state of finances of the Foundation.

We can sympathize with the desire of the Directors of the Foundation to maintain a cushion against possible economic stress while expending over the ten-year period, nearly two million dollars for various essential projects. In the absence of assurances that the Foundation can build up a very substantial surplus during the next few years, there is a proper reluctance about expending more than the annual income. Therefore, those who have funds available should give consideration to the advisability of making their contributions sufficiently large so as to enable the Foundation to take care of the demands of any current year while building up its reserve to the point where interest from that source also will be fairly substantial.

Without any question, the Foundation has filled a most useful purpose and the drug industry should bear in mind that the need for the Foundation continues and will continue for many years to come.

The incoming president of the Foundation is Dr. H. A. B. Dunning, who for many years has been vitally interested in every movement that furthers the professional aspects of pharmacy. Mr. George V. Doerr and Mr. Charles Beardsley, who previously served as Presidents of the Foundation, represented wholesaling and manufacturing interests. While Dr. Dunning is also a manufacturer, he has, however, retained his interest in retail pharmacy and continues to operate an outstanding exclusive prescription establishment in Baltimore as a part of his organization. He brings to the presidency of the Foundation a wealth of experience in the guidance of pharmaceutical projects requiring financial assistance and administrative leadership of a high order.

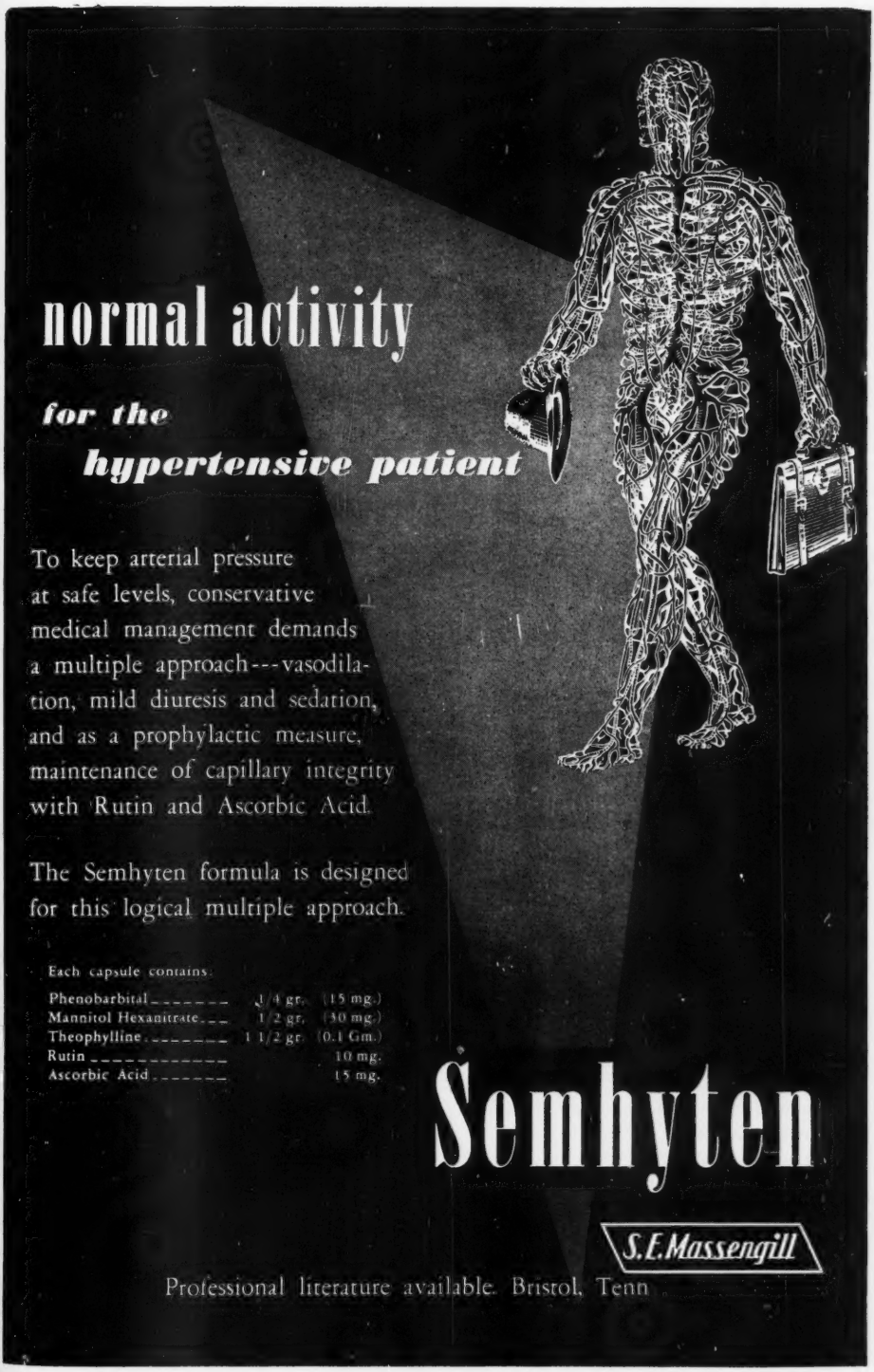
Facts About Fluoridation *from page 323*

Wherever fluoridation of the water supply is undertaken, strict control of the entire water treatment must be exercised. Some of the maximum limits in parts per million of dissolved substances in a water considered to be "acceptable" by the American Water Works Association are: lead 1.0, copper 0.2, zinc 5.0, sulfate 250.0, magnesium 100.0, chloride 250.0, iron 0.3. Alkali carbonates in treated waters should not exceed 50.0 p.p.m. The approximate concentrations, in p.p.m. of some fluorides that could be present in water without causing turbidity are: lead 640.0, zinc 10,000.0, magnesium 76.0, calcium 16.0, iron 910.0, mercury 36,000.0. Ammonium fluoride is very soluble; aluminum fluoride in soluble. Sodium fluoride is soluble about 4 Gm. in 100 cc. of water; and about 90 Gm. of potassium fluoride will dissolve in 100 cc. of water. Silver fluoride ignores the behavior of the other silver halides and dissolves to the extent of 182 Gm. in 100 cc. of water. These solubilities indicate the improbability of additional chemical incompatibilities resulting from the unavoidable use of fluoridated water in compounding pharmaceuticals.

In order to test these theoretical considerations, the following products were prepared to contain 12 p.p.m. of sodium fluoride by addition of the salt to the clear preparations: 1% atropine sulfate solution, iron and ammonium acetate solution, 10% iron and ammonium citrate solution, iron, quinine and strychnine elixir, pentobarbital elixir, pepsin and rennin elixir, terpin hydrate elixir, and three bromides elixir. No change attributable to the added sodium fluoride was noted in any of the products; although the amount of fluoride added was about ten times the maximum concentration that would be added to fluoridate a public water supply in a cold zone, where the fluoride would be higher to compensate for the smaller amount of water drunk by the inhabitants. Solutions of calcium bromide 10% showed no change with concentrations of sodium fluoride up to 6 p.p.m.

Injectable preparations are not and should never be prepared with ordinary water. Water for injection is prepared by distillation. Solutions of antibiotics are more stable when prepared with sterile distilled water or a sterile buffered vehicle. Vehicles are usually supplied with antibiotics that are to be dispensed in solution or suspension.

It is fairly safe to say that fluoride enriched water supplies can be freely used for all pharmaceutical purposes for which the same waters were satisfactory before their fluoridation.


normal activity
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hypertensive patient
To keep arterial pressure at safe levels, conservative medical management demands a multiple approach---vasodilation, mild diuresis and sedation, and as a prophylactic measure, maintenance of capillary integrity with Rutin and Ascorbic Acid.
The Semhyten formula is designed for this logical multiple approach.
Each capsule contains:
Phenobarbital ..... 1/4 gr. (15 mg.)
Mannitol Hexanitrate ... 1/2 gr. (30 mg.)
Theophylline ..... 1 1/2 gr. (0.1 Gm.)
Rutin ..... 10 mg.
Ascorbic Acid ..... 15 mg.
Semhyten
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Professional literature available. Bristol, Tenn.

Isotonic Solutions

• • • • • • • • • • • • • *from page 341*

fate to terms of percentage, as is the case in Sprowls' method of calculation.[2]

3. Ephedrine Sulfate	0.5
Chlorobutanol	0.2
Distilled Water *q.s.*	60.0
M. ft. isotonic buffered nose drops.	

If two or more drugs are contained in the prescription, the volumes of isotonic solution which can be prepared from each drug are added together. The volume of isotonic solution prepared from:

0.5 Gm. ephedrine sulfate . . 0.5 × 21.1 = 10.6 cc.
0.2 Gm. chlorobutanol . . . . 0.2 × 20.0 = 4.0 cc.

14.6 cc.

Sufficient distilled water is added to the ephedrine sulfate and chlorobutanol to make 14.6 cc. This is diluted with a suitable isotonic buffered solution (1,5) to make 60.0 cc.

4. Silver Nitrate $^1/_2$%	15.0
M. ft. isotonic	

.005 × 15.0 = .075 Gm. $AgNO_3$ required.

.075 × 43.3 = 3.25 cc. of isotonic solution which can be made from .075 Gm. $AgNO_3$.

The silver nitrate is dissolved in enough distilled water to make 3.25 cc. Add sufficient isotonic sodium nitrate solution* to make 15 cc.

* One Gm. of sodium nitrate in 68.9 cc. of aqueous solution (1.45%) is isotonic. See Table I.

REFERENCES

1. White, A. I., and Vincent, H. C., THIS JOURNAL, **8**: 406 (1947).
2. Sprowls, J. B., *ibid.*, **10**: 350 (1949).
3. Krogh, A., Lund, C. G., and Pedersen-Bjergaard, K., *Acta Physiol. Scand.*, **10**: 88 (1945); *Chem. Abstr.*, **40**: 1921 (1946).
4. Hind, H. W., and Goyan, F. M., THIS JOURNAL, *Sci. Ed.*, **38**: 477 (1949).
5. Hind, H. W., and Goyan, F. M., *ibid.*, *Sci. Ed.*, **36**: 33 (1947).

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Hesperidin Methyl Chalcone
Lemon Peel Infusion, dried
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Citrus Bioflavonoids
Sodium Polypectate
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Pectin, L. M.
Pectic Acid
Hesperidin
Naringin

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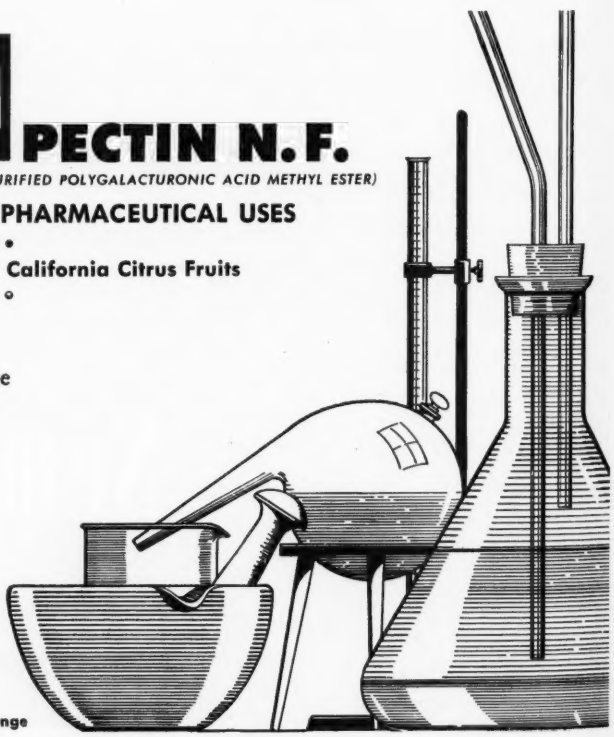

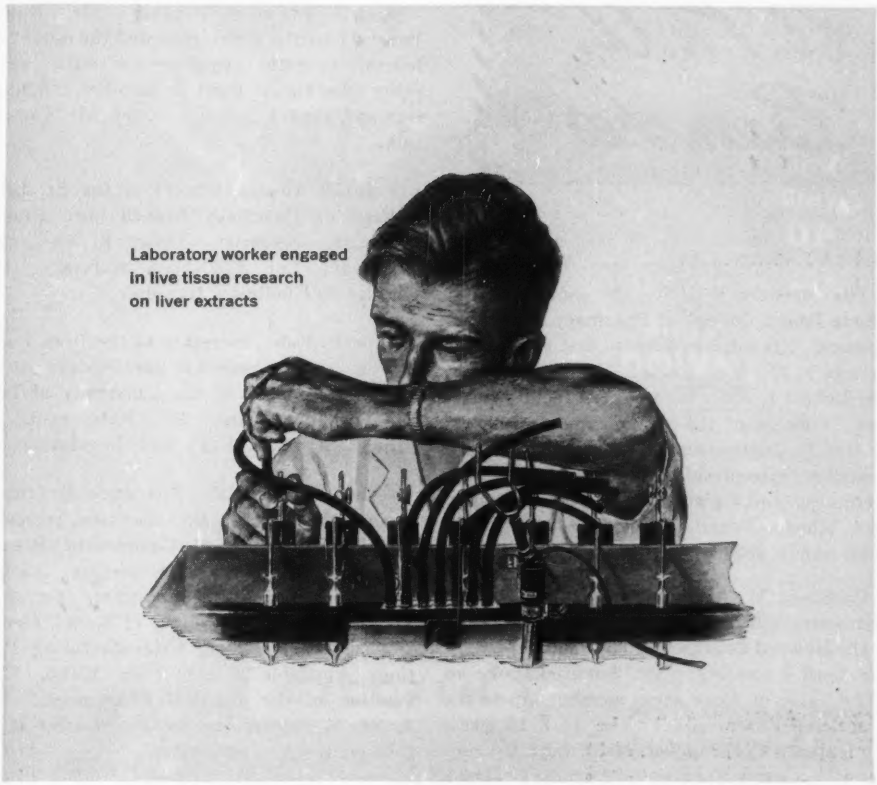

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LIVER INJECTION and LIVER INJECTION CRUDE *Lederle* are rich in the vital factors which are elaborated or stored in mammalian liver during life. The beneficial effects of liver extracts in metabolic and nutritional deficiency states are well known, as well as in the treatment of the megaloblastic anemias, including pernicious anemia.

LIVER EXTRACTS, especially prepared for intravenous injection, have been widely used in hepatic disease, particularly for the treatment of hepatic sclerosis. Such an extract is INTRAHEPTOL* Liver Concentrate *Lederle*. Where this extract is used for hepatic disease, it may be used in conjunction with DELPHICOL* Tricholine Citrate with Methionine *Lederle* given orally.

LIVER INJECTION U.S.P. 10 micrograms
(Refined Solution Liver Extract 10 U.S.P. Units)
Vials of 10 cc. and 30 cc.

LIVER INJECTION U.S.P. 20 micrograms
(Solution Liver Extract Concentrated 15 U.S.P. Units)
3 vials of 1 cc.; vials of 10 cc.

LIVER INJECTION CRUDE U.S.P. 2 micrograms
(Crude Solution Liver Extract 2 U.S.P. Units) Vials of 10 cc.

LIVER INJECTION U.S.P. with FOLVITE* Folic Acid
Liver Injection 20 micrograms with Folic Acid 5 mg. (FOLVITE with Liver Extract 15 Units) 3 vials of 1 cc.; vials of 10 cc.

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Liver Injection Crude 1 microgram with Folic Acid 1 mg. (FOLVITE with Liver Extract, Crude 1 Unit) Vials of 10 cc. and 30 cc.

LIVER INJECTION CRUDE with FOLVITE Folic Acid
Liver Injection Crude 2 micrograms with Folic Acid 2 mg. (FOLVITE with Liver Extract, Crude 2 Units) Vials of 10 cc. and 30 cc.

INTRAHEPTOL Liver Concentrate *Lederle*
Vials of 10 cc.

DELPHICOL Tricholine Citrate with Methionine *Lederle*
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STUDENT BRANCHES

The recently re-activated branch of the **Rhode Island College of Pharmacy and Allied Sciences,** Providence, held its first meeting on February 27. Dr. Russell E. Brillhart and Dr. Robert I. Ellin were elected faculty advisers. Officers of the Branch are as follows: Arthur P. Courtemanche, president; Richard Cosimini, vice-president; Joan M. Doonan, secretary; and Paramez Avedesian, treasurer. The Rhode Island Branch was originally chartered in 1939.

President M. A. Boynton of the Alabama Pharmaceutical Association addressed members of the **Howard College Branch,** Birmingham, at the April 1 meeting. Mr. Boynton spoke on "The Value of Association membership to the Practicing Pharmacist." The April 15 meeting featured Carl Macker, of Eli Lilly & Company, as guest speaker. "Detailing Versus Retailing" was the title of his talk.

The **University of Connecticut Branch,** Storrs, sponsored a panel discussion in which the pharmacy curriculum was discussed on March 19. Members of the panel were: Margaret Adams, graduate student; Dr. Richard Thomas, faculty members; Francis Cole, retail pharmacist; and Phil Roos and Abe Rosen, student members. Dr. Arthur E. Schwarting acted as moderator.

Executive council meetings of the **University of Wisconsin Branch,** Madison, were held March 13 and March 27. Since an invitation was received to attend the Fourth District Convention in Chicago April 27, 28 and 29, fourteen delegates were appointed to attend.

Election of officers of the **University of Michigan Branch,** Ann Arbor, was held on March 12. The new officers are: Bruce Wilmarth, president; Henry Pryzbek, vice-president; Joseph Schultz, treasurer; and Franz Geisz, Jr., secretary.

The **University of Pittsburgh Branch** held a meeting on March 20, at which D. W. Roush appeared as guest speaker. Mr. Roush, Federal narcotic agent, reviewed the important federal narcotic requirements with which every pharmacist must be familiar. A question-and-answer period followed Mr. Roush's talk.

Recently elected officers of the **St. Louis College of Pharmacy Branch** are: Francis Fillingim, president; Charles F. Ray, vice-president; Lou Fogleman, secretary; and Charles E. Knollman, treasurer.

John F. Rabe, Secretary of the Iowa Board of Pharmacy, appeared as guest speaker at the March 3 meeting of the **University of Iowa Branch,** Iowa City. Mr. Rabe spoke on "Iowa Pharmacy Laws and Regulations."

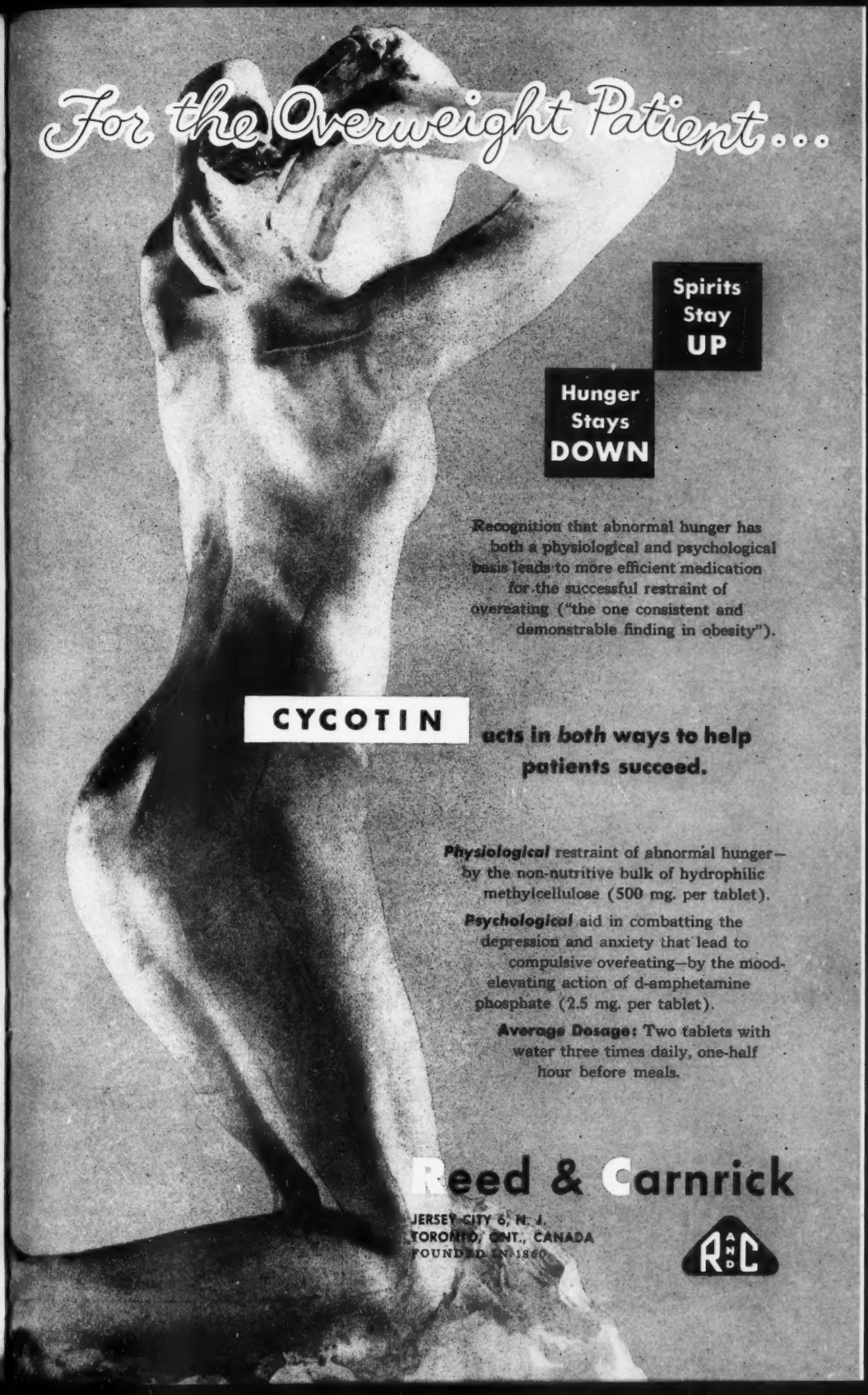
"The Future of the Pharmacy Graduate" was the topic of the panel discussion presented by the **University of Connecticut Branch,** Storrs, at the February 18 meeting. Participants in the panel discussion were: Raymond Mercier, "The Advantages of Retail Pharmacy"; Oscar Sumner, "Manufacturing Positions Available"; and John Webb, "The Position of the Hospital Pharmacist." Dr. Arthur E. Schwarting, faculty member at the College, acted as moderator.

The **Texas Southern University Branch,** Houston, was host to Dr. Troy E. Daniels, Dean, University of California College of Pharmacy, and Dr. Richard A. Deno, Director, Educational Relations of the American Council on Pharmaceutical Education, on March 3. Dr. Deno spoke on the growth of pharmacy schools, commending the Texas Southern University School of Pharmacy for the progress it has made in so short a time. A film, "The Heart and Circulation" was shown as the regular educational feature of the meeting.

A film of ACTH was shown to members of the **Fordham University Branch,** New York, at the February meeting. Mr. Sheehan, of Armour Laboratories, acted as moderator.

More than 100 faculty and student members and guests attended the annual banquet of the **Southwestern State College Branch.** The banquet was held March 24 in the College cafeteria.

(Continued on page 358)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Spirits Stay UP
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Recognition that abnormal hunger has both a physiological and psychological basis leads to more efficient medication for the successful restraint of overeating ("the one consistent and demonstrable finding in obesity").
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acts in both ways to help patients succeed.
Physiological restraint of abnormal hunger—by the non-nutritive bulk of hydrophilic methylcellulose (500 mg. per tablet).
Psychological aid in combatting the depression and anxiety that lead to compulsive overeating—by the mood-elevating action of d-amphetamine phosphate (2.5 mg. per tablet).
Average Dosage: Two tablets with water three times daily, one-half hour before meals.
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FOUNDED IN 1860
R AND C

A. PH. A. Branches

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At the March 12 meeting of the **Oregon State College Branch,** Corvallis, John Dayton was elected president to serve during the 1952 term. Other officers are: Harrison Bowman, vice-president; Nancy Lum, secretary; and Elmer Porter, treasurer.

Loyola University Branch, New Orleans, La., held a regular monthly meeting on April 16. Guest speaker of the evening was Dr. Lee McLean, dermatologist, who spoke on "Drug Allergies and Their Cures."

LOCAL BRANCHES

"Actions of Soaps and Detergents on the Human Skin" was the title of a talk given by Dr. Wm. H. Eyster, Jr., at the April 23 meeting of the **Northwestern Ohio Branch,** held in Toledo, Ohio. Dr. Eyster is a member of the Toledo Clinic. Plans for the Annual Banquet to be held May 22, at the Maumee River Yacht Club, have been completed. Clarence Buell will act as master of ceremonies.

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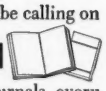

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The annual joint meeting of the medical, dental, nursing, and chiropodial professions of New Jersey, sponsored by the **Northern New Jersey Branch,** was held April 9, in Newark. Dr. Fleming, assistant director of Clinical Research at Hoffmann-La Roche, Inc., delivered a talk on "Fungus Infections," which included a discussion on recently released antitubercular agents. Kodachrome slides were used to illustrate cases of fungus infections.

The March 25 meeting of the **Michigan Branch** was devoted to the annual "Student Night" program. Representative students from Michigan Colleges of Pharmacy presented papers on subjects related to pharmacy, in competition for awards under the rules laid down by the late R. L. McCabe. The trophy and first prize were awarded to Richard Hadad of the Detroit Institute of Technology for his paper "We the People." Since this is the third consecutive year in which a student from Detroit Institute of Technology has won the first prize, this school now gains permanent possession of the trophy. Second prize went to Fred Germer of the University of Michigan for his paper "Fire in Pharmacy." Third prize was presented to James Kirk of Wayne University. Mr. Kirk spoke on "Practical Drug Store Experience." O. C. Evans of the McCabe Pharmacy again donated the awards.

The April meeting of the **Northern California Branch** was held April 16 in San Francisco. Dr. Ellis D. Sox, Director of Public Health for the City and County of San Francisco, spoke on "The Pharmacist's Role in Public Health Problems."

The **Greater Los Angeles Branch** held its second meeting of 1952 on February 25. Dr. de los Reyes discussed the subject "Political Medicine" which was followed by a question-answer period. The Legislative Committee of the Branch submitted its report on the work done toward drawing up an amendment to the present State Professional Code concerning the experience requirement of students and the possible licensing of such students as apprentices. This subject was again discussed at the March 20 meeting. Jerome Schwartz, legislative committee member and attorney, was appointed to work in conjunction with the State Board and the Deans of the two colleges of pharmacy to draft a suitable amendment and submit it at a later date.

PRESCRIPTION
Research that you dispense
From Maltbie research laboratories and from research in many clinical institutions come the findings that contribute to the constant development and improvement of Maltbie products. And from the Maltbie program of professional promotion comes the physician-acceptance that produces an ever-increasing prescription volume of Maltbie products for pharmacies throughout the land.
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BRIEFLY NOTED

COLLEGES

West Virginia University College of Pharmacy sponsored an exhibit "Know Your Pharmacist," during the institution's annual observance of Greater West Virginia Weekend, May 9–11. The exhibit, directed by Robert J. Watz, junior in pharmacy, featured pharmaceutical displays in keeping with the theme.

The **Rutgers University Pharmaceutical Conference** was held in New Brunswick on May 14. The theme of the conference, "Progress through Knowledge and Mutual Understanding," stressed the "changing pattern of distribution in the drug and pharmaceutical field, a highly controversial subject."

The **Southwestern State College School of Pharmacy,** Weatherford, Oklahoma, is now requiring that all senior students learn to accurately take and fill telephoned prescriptions. Six telephone receiver sets have been hooked up to a tape recorder in the prescription laboratory. The student hears the doctor's voice giving the instructions and both voices are transcribed on a tape recorder. The student is then graded on his accuracy in filling the prescription and his handling of the call.

An anonymous gift of $6000 for construction of a new pharmacology and pharmacognosy laboratory has recently been received at the **University of Toledo.** However, as a stipulation of the donation, alumni of the College of Pharmacy and members of the profession must match the gift with an equal amount. Pharmacists Carlton J. Siegel and Chester F. Kaliski have been named co-chairmen of the committee to head the drive for a matching fund. Other members are Walding G. Rupp, secretary; Eugene B. Imholt, Harold F. Emerson, Clifford M. Collins, Mr. Knowles, and Dean Larwood.

Howard College, Birmingham, Alabama, has set up an optional five-year pharmacy course, with four students now enrolled. Dr. C. Lee Huyck, Dean, explained that another year's study would help a student become a better business man as well as a professional man. He praised Howard's new program because "it spreads the program better for the student, gives a better background for graduate work and employment, and also provides better premedical training."

The **University of Georgia's** top pharmacy students were honored Tuesday night, April 15, at the annual R. C. Wilson Awards Dinner, held as part of the Pharmacy School's annual Student-Faculty-Alumni Day. Don E. Francke, president of the AMERICAN PHARMACEUTICAL ASSOCIATION, was guest speaker for the School of Pharmacy's Awards Banquet. The awards and recipients are as follows: R. C. Wilson Award to Emory O. Veale, Arnoldsville, as the most outstanding senior in the Pharmacy School; Rho Chi Award for the most outstanding freshman to Wilbur L. Clifton, Albany; the Bristol Award to Maynor Belcher, Quitman, as the outstanding senior in extracurricular activities; Atlanta Drug and Chemical Club Awards for achievement in Pharmaceutical chemistry and for outstanding scholastic achievement in pharmacy to Samuel K. Henley, Blackshear, and William Earl Landers, Lindale, respectively; the Merck Awards recognizing achievement in practical pharmacy to Seniors Donald A. Cooper, Park Ridge, Ill., and Harry Sutton, Ocilla; and Kappa Psi awards to Don R. Hall, Augusta, and Lowell Kepp, Savannah.

The **University of Illinois** recently began construction on a new classroom and laboratory building in the Medical Center District which will permit the Colleges of Pharmacy, Medicine, and Dentistry to increase their enrollments. The six-story structure, known as the East Unit of the Dentistry-Medicine-Pharmacy Building, will permit the University to accept a larger number of qualified students who otherwise could not gain admission.

(Continued on page 362)

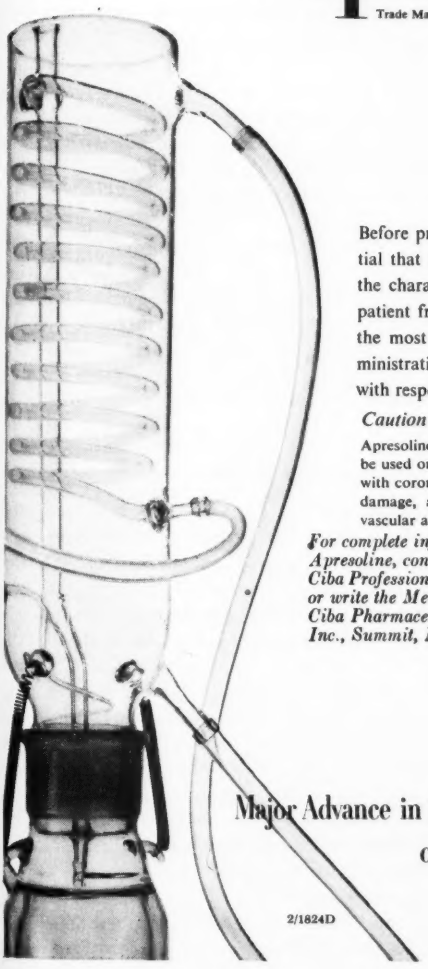
Ciba announces the availability of a new antihypertensive agent

Apresoline*

Trade Mark

(*brand of hydralazine*)
hydrochloride

* **Clinically investigated as C-5968 and also 1-Hydrazinophthalazine, hydrochloride**

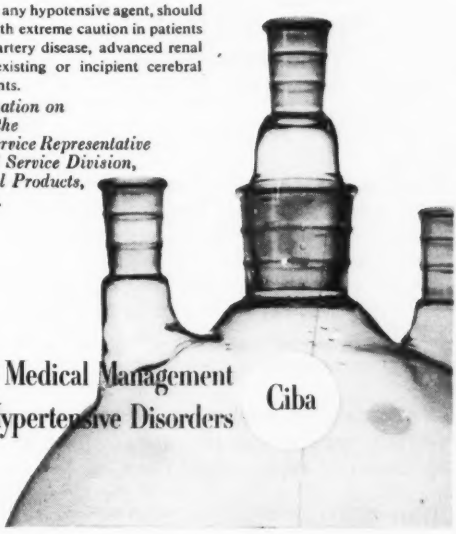


Before prescribing or administering Apresoline, it is essential that the physician thoroughly familiarize himself with the characteristics of the drug. The benefit derived by the patient from Apresoline is dependent in vital degree upon the most meticulous attention to individualization of administration, dosage, and its adjustment in accordance with response.

Caution

Apresoline, like any hypotensive agent, should be used only with extreme caution in patients with coronary artery disease, advanced renal damage, and existing or incipient cerebral vascular accidents.

For complete information on Apresoline, contact the Ciba Professional Service Representative or write the Medical Service Division, Ciba Pharmaceutical Products, Inc., Summit, N. J.



Major Advance in the Medical Management of Hypertensive Disorders

Ciba

2/1824D

Briefly Noted

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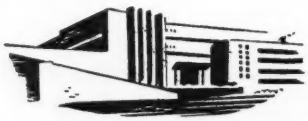
The annual Spring Clinic and Alumni Day, sponsored by the **University of Buffalo School of Pharmacy** and its Alumni Association, was held on May 1. Two sessions were held during the day, with the morning session including a panel on "What Is The Best Answer to Pharmacy's No. 1 Irritant—The Duplication of Manufacturers' Drug Products." Mearl D. Pritchard, president, Erie County Pharmaceutical Association, acted as moderator, with the following as participants: Benjamin A. Smith, Eli Lilly and Company; Francis X. Sturner, Chief Pharmacist, Buffalo General Hospital; and Clarence Obletz, treasurer of Lee's Drug Stores, Inc.

Rev. Charles J. Deane S.J., Regent of the **Fordham University College of Pharmacy** for the past twenty-seven years and Acting Dean during the war years, was honored for his long and devoted service at an informal dinner held at Mount Vernon, N. Y., on April 3.

MANUFACTURERS



Dr. Fred P. Nabenhauer, research scientist in the Organic Chemistry Section of **Smith, Kline & French Laboratories,** Philadelphia, has been appointed Director Emeritus of Organic Chemistry. This appointment will make it possible for Dr. Nabenhauer to freely pursue research of his own choosing. At the same time, he will serve as a senior scientific adviser to the members of the research and development division.

A composite Australian-Danish company has recently been formed in Australia by representatives of Frederiksberg Chemical Laboratories, Ltd., Copenhagen, and Drug Houses of Australia, Ltd., to manufacture ACTH from pig, sheep, and cattle pituitaries. The new company, to be called **Acton Laboratories** (Australia) Pty. Ltd., will be directed by Mr. Arne Ludvigsen, Mr. Clive Catt, and Dr. T. F. West.

A dinner honoring the eleven top scientists of the team which discovered and developed terramycin was held in New York, March 19, eve of the second anniversary of the drug's first distribution by **Chas Pfizer & Co.** The dinner was attended by ten of the eleven Pfizer scientists, who were associated with the birth of this product and all eight of the original detail men who worked on its distribution. Speakers were John L. Davenport, executive vice-president, and Thomas J. Winn, manager of the antibiotic division.

The first year's **M & R Laboratories** awards have been won by Dr. J. DeWitt Fox, Washington, D. C., and Dr. D. G. Miller, Jr., Morgantown, Ky., for their articles which were published during 1951 in *GP*. The two scientific papers for 1951, selected as the most significant articles published in *GP*, the official organ of the American Academy of General Practice, were Dr. Miller's "Bites and Stings," in the July issue, and Dr. Fox's "ACTH and Cortisone—Miracle Therapy or Medical Tool?" published in February. The awards, consisting of an engraved plaque and a check for one thousand dollars, were presented during the scientific session of the Fourth Annual Assembly of the A. A. G. P., held in Atlantic City, March 25.

Personnel Changes—

Sharp & Dohme, Inc.—Dr. Alfred A. Tytell and Charles J. Wiley have joined the research staff. **Bristol Laboratories, Inc.**—Dr. Charles C. Scott has been named medical director. **Ciba Pharmaceutical Products, Inc.**—H. Elizabeth Bachofner was recently appointed to the position of technical assistant to Dr. Werner H. Fischer, vice-president in charge of production. **A. H. Robins Company, Inc.**—Dr. Eugene L. Jackson, medical director with the firm since 1946, has been elected to a vice-presidency in the company. In addition to his new duties, Dr. Jackson will continue in his position as medical director. **Schenley Laboratories, Inc.**—George R. Gilbert, export manager of the firm since 1950, was recently named to the post of vice-president in charge of international operations. **George A. Breon & Company**—Charles L. Czermak was recently named general sales manager and will supervise distribution of the firm's medicinal products.

(Continued on page 365)

Pfizer antibiotics reporter

NEW ANTI-TB DRUG: Cotinazin†, Pfizer's new drug for the treatment of tuberculosis, will be available shortly. Cotinazin is isonicotinic acid hydrazide, a compound with apparently specific action against M. tuberculosis. Clinical studies indicate high effectiveness, low toxicity. Cotinazin will be supplied in 50 mg. tablets, in bottles of 25, 100 and 1000.

NEW FINDINGS: Bacitracin may now be given by intraventricular or intracerebral routes and into the scalp wound as prophylaxis — without producing local irritation or systemic toxicity. In 45 cases of infections involving the central nervous system, Bacitracin was safely administered "not only to an intact cortical surface, but also to cut surfaces after topectomy or lobectomy."* Now available for hospital use, Pfizer's Bacitracin Sterile is supplied in vials of 50,000 units.

*Teng, P., and Meleney, E. L.: Surgery (Feb.) 1952.

"SINGLY EFFECTIVE AGENT"*: Peritonitis unquestionably placed on the growing list of indications for Terramycin. "Gratifying results" achieved in 68 Terramycin-treated cases of peritonitis, including 28 of appendiceal origin and 18 secondary to gunshot wounds of the abdomen. Large number of excellent responses in cases of spreading peritonitis. Terramycin acclaimed "a superior antibiotic in the treatment of peritonitis — especially useful whenever penicillin and streptomycin have failed."

*Reiss, E., et al.: Arch. Surg. (Jan.) 1952.

VERSUS MYCOSIS: Recent in vitro tests indicate "Polymyxins B and E may be more effective than some antifungal drugs in current use." Absence of sensitizing properties of Polymyxin makes it ideally suited for topical application. Furthermore, "current reports favoring its parenteral use for certain bacterial infections suggest its trial for therapy in various systemic mycoses."* Polymyxin B Sulfate now supplied by Pfizer in three Rx-making dosage forms: Sterile (parenteral) 500,000 units; Sterile (topical) 200,000 units; Ointment (topical) 20,000 units per gram.

*Florestano, H. J., and Bahler, M. E.: Proc. Soc. Exper. Biol. & Med. (Jan.) 1952.

ANTIBIOTICS IN DENTISTRY: Oral Surgery Service of New York City's Bellevue Hospital recently acclaimed Terramycin "a powerful and effective agent" in the control of oral surgical infections..."more suitable than penicillin" because of its broad antimicrobial spectrum. Over 50 cases of abscessed tooth sockets and infected tooth crowns successfully treated with Terramycin.* Ideally suited to dental practice are Terramycin Dental Cones, Dental Paste, Troches, Soluble Tablets, Capsules and Oral Suspension.

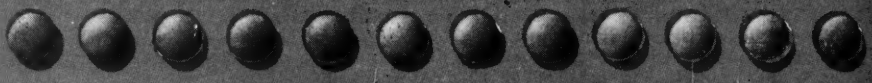
*Winter, L., and Van Gaasbeck, B.: J. New York State Dent. Soc. (March) 1952.

Rx-MAKING ANTIBIOTIC OF CHOICE: Terramycin "selected in preference to...other... antibiotics" because of its higher urinary excretion rate.* Immediately following Terramycin therapy, 44 postoperative cases involving urinary tract infections yielded no positive cultures of B. coli (the most frequently encountered pathogen in the G.U. tract). Another clinical acclaim to build Rx volume and profits.

*Blahey, P. R.: Canad. M. A. J. (Feb.) 1952.

†Trademark, Chas. Pfizer & Co., Inc.

NOTICE



You can now place orders for the better-tolerated broad-spectrum antibiotic in a dosage form with a prescription potential unrivaled by any other anti-infective agent

CRYSTALLINE

Terramycin

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TABLETS

(SUGAR COATED)

provide a welcome, more acceptable non-liquid preparation for the patient . . . sound, *"profitable* Rx reasoning"

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250 mg. 100 mg. 50 mg.

Call your wholesaler.
***Get your* full *stock* today!**

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BROOKLYN 6, N.Y.

WORLD'S LARGEST PRODUCER OF ANTIBIOTICS

Briefly Noted

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AT RANDOM

Dr. Paul B. Dunbar, former Commissioner of the Federal Food and Drug Administration, received the special annual award of the **American Pharmaceutical Manufacturers' Association** for outstanding service in helping to uphold the "high standards of public health" in the United States. This honor was bestowed on Dr. Dunbar at the Association's annual convention held at Boca Raton, Florida, April 7–9. At a previous session on April 8, Dr. Rene J. Dubos, world-famous authority on tuberculosis, received the 1952 annual Research Award of the A. P. M. A. for scientific contributions to the "welfare of mankind."

At the annual meeting of the **Pennsylvania Academy of Science** held April 11 and 12, at Dickinson College, Dr. Edward P. Claus, professor of pharmacognosy at the University of Pittsburgh School of Pharmacy, was elected president for the coming year.

The 29th Annual **Plant Science Seminar** will be held in Philadelphia, on August 12–16 with headquarters at the John Bartram Hotel. Dr. Frank H. Eby is local secretary for the meeting and his committee consists of Dean Joseph B. Sprowls, Temple University School of Pharmacy, and Dr. Marin S. Dunn and Dr. Edmund H. McLaughlin, Philadelphia College of Pharmacy and Science.

According to a recent announcement by Dr. Louis N. Katz, president of the **American Heart Association,** Dr. Charles D. Marple has been appointed medical director of the Association. Dr. Marple, assistant clinical professor of medicine at the University of California School of Medicine, will administer the research policies and scientific program of the Association, as developed by the Association's Scientific Council, and will also be responsible for conducting the program of physician education.

Professor George Urdang of the University of Wisconsin School of Pharmacy, and director of the American Institute of the History of Pharmacy, recently announced the publication of **"A Concise History of Pharmacy in Puerto Rico,"** the first in a series of monographs that eventually will cover the story of pharmacy in all the Latin-American countries. Author of the monograph is Luis Torres-Diaz, dean of the College of Pharmacy, University of Puerto Rico.

W. Burton Lord of J. B. Roerig & Co., was elected president of the recently-formed **Midwest Pharmaceutical Advertising Club.** The first regular meeting was held in Chicago, April 23, with over 70 pharmaceutical, agency, and publisher representatives in attendance.

A similar club, which will meet once a month to discuss advertising problems relating to the pharmaceutical industry, has been formed in Philadelphia and its surrounding area, and will be known as the **Philadelphia Pharmaceutical Advertising Club.**

HOSPITAL PHARMACY

The Veterans Administration's **Special Pharmacy Training Committee** has recommended a two-year residency or academic training program leading to a Master's degree. The academic training will be offered in affiliated colleges and universities which are located near adequately staffed and equipped VA hospitals. Those eligible for the program must be recent pharmacy graduates with B.S. degrees and registered in one of the states. This will be under the supervision of a VA chief pharmacist and will include all phases of hospital pharmacy operations. The Committee recommended that the pharmacy training be integrated with other professional training programs in VA hospitals. It was also recommended that the standards as adopted for the VA program conform with the Minimum Standard for Pharmacy Internships in Hospitals as established by the American Society of Hospital Pharmacists and which is now being studied by the Division of Hospital Pharmacy.

(Continued on next page)

Briefly Noted

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The **U. S. Public Health Service** has announced a one-year, non-academic, **hospital pharmacy internship** beginning July 1, 1952. The program will be offered first at the Public Health Service Hospital in Baltimore, Md. and eventually at six other Public Health Service Hospitals including those located at Boston, Mass., New Orleans, La., Norfolk, Va., San Francisco, Calif., Seattle, Wash., and Staten Island, N. Y.

The training will include work in pharmacology, biochemistry and pharmacy administration, and preparing the pharmacists to serve as drug therapy consultants to the staff and department managers of the hospital. Also, the program will meet the requirements of the Minimum Standard for Pharmacy Internships in Hospitals of the A. PH. A. and the A. S. H. P.

A candidate selected for an internship in a U. S. Public Health Service Hospital must be eligible for commission in the grade of Junior Assistant Pharmacist (equivalent to 2nd Lieutenant or Ensign) in the Reserve Corps of the Public Health Service. Interns so commissioned will serve on active duty status and will enjoy all the rights and privileges of a commissioned officer. The annual pay and allowances are $3,969 for those with dependents, $3,789 for those without dependents, and with no previous military service.

Candidates for Public Health Service hospital pharmacy internships are selected from recent graduates of approved colleges of Pharmacy. An applicant for an internship in hospital pharmacy administration must be a citizen of the United States, and must satisfactorily pass a physical examination performed by medical officers of the U. S. Public Health Service.

The **First International Congress of Hospital Pharmacists** is to be held in Basle, Switzerland, September 17 to 19, 1952. According to a preliminary announcement, the program will include scientific lectures, discussions of pharmacy administration and organization problems, short papers on specific work done by hospital pharmacists (manufacturing, control analysis, clinical-chemical analyses, etc.); demonstrations of machines, apparatus and instruments for hospital pharmacies; and inspection tours of pharmaceutical manufacturing houses, the hospital pharmacy at Basle and the museum of pharmacy history.

Hospital pharmacists interested in attending the International Congress, or submitting a paper, should contact Dr. K. Steiger, Kantons-Apotheke, Zürich, Rämistr. 100.

GOVERNMENT

Dr. Leonard A. Scheele was sworn in for his second term as Surgeon General of the U. S. Public Health Service on April 3. Confirmation of the reappointment was made by the Senate on March 11. Ceremonies honoring Dr. Scheele were held in the Federal Security Building auditorium at 11 a. m. Dr. Scheele is the seventh Surgeon General to be appointed since the position was created by Congress in 1870.

The two top medical advisory groups to the Veterans Administration, consisting of 43 of the nation's outstanding medical, dental, nursing, and dietetic authorities, have voted "full confidence" in the **VA medical program** under the direction of Admiral Joel T. Boone, Chief Medical Director. The resolution was voted at the end of a two-day joint conference of the Special Medical Advisory Group and of the Board of Chief Consultants at a meeting held on March 10 and 11 in Washington, D. C., to study the details and over-all operation of the VA medical program. It was the first joint conference held by these two groups.

Federal Security Administrator Oscar R. Ewing singled out the ten-year health accomplishments of Puerto Rico for special commendation in connection with the observance of **World Health Day,** April 7. Mr. Ewing pointed out that health gains which have been accomplished in the first decade of Puerto Rico's economic development program have put the island on a par with the healthiest countries in the world, and praised the Puerto Rican government for the progress it has made despite low per capita income and a rapidly increasing population.

in penicillin reactions...

NEW, "remarkably effective"[1] treatment

Decholin Sodium and Decholin
(BRAND) (BRAND)

Gratifying results are reported[1-2] with *Decholin Sodium* and *Decholin* in treating penicillin reactions of the most commonly encountered type—with symptoms simulating serum disease. The treatment "has not failed so far in any patient with serum-sickness type of penicillin sensitivity."[1] Most of the patients in this study had been given a variety of other medications without success prior to the successful use of *Decholin Sodium* and *Decholin*.

SYMPTOMS: Fever, itching, joint pains, urticaria, edema, hoarse or tight throat and other serum-sickness types of penicillin reactions respond promptly to this new therapy—relief is usually complete within an average of four days.

TREATMENT: Subject to adjustment by the physician, a routine schedule is to inject 5 cc. *Decholin Sodium* intravenously, once daily or every other day (depending on degree of sensitization), also one tablet of *Decholin* three times daily.

Decholin Sodium (brand of sodium dehydrocholate) 20% aqueous solution for intravenous injection; ampls of 3 cc., 5 cc. and 10 cc.

Decholin (brand of dehydrocholic acid) Tablets 3¼ gr. (0.25 Gm.) in bottles of 100.

Decholin Sodium and *Decholin*, trademarks reg.

1. Pelner, L., and Waldman, S.: Postgrad. Med. *11*:49 (Jan.) 1952.
2. Pelner, L., and Waldman, S.: Am. Pract. *3*:293 (Apr.) 1952.

This *new* and *effective* approach to control of penicillin reactions means that physicians will be using more *Decholin* than ever before. Take this additional important use for *Decholin* into consideration when you place your next order.

DS-2p

AMES
COMPANY, INC. • ELKHART, INDIANA

Ames Company of Canada, Ltd., Toronto

Ointment Base

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by a standard technique and placed on seeded agar plates. Zones of inhibition appearing on the seeded plates were compared with zones yielded by known concentrations of antibiotic placed on the plates on discs in the same manner. Determinations were made in duplicate.

Results of Diffusibility Studies.—Results of diffusion studies by Method A are set forth in Table II and are illustrated in Figures 1 and 2. The data included in Table II represent averages of triplicate determinations in each case. Agreement between replicates was within 0.7 mm. in all cases. Numerous bases of composition similar to Base B but containing other wetting agents were tested by Method A for rate of release of antibiotics. Diffusion of polymyxin from these bases was very poor in all cases. Bacitracin diffusion from these bases was not examined in all cases but was poor in every case examined.

Results of diffusion of polymyxin and bacitracin from a grease base (Ointment C) and from a polyethylene glycol diester base (Ointment D), as measured by Method B, are presented graphically in Figures 3 and 4. Measurements of diffusion by this more direct method showed even greater contrast between rates of diffusion from the grease base and the polyethylene glycol diester base than did measurements by the modified agar plate method.

REFERENCES

1. Miller, J. L., Slatkin, M. H., and Johnson, B. A., *Arch. Dermatol. and Syphilol.*, **60:** 106 (1949).
2. Bond, G. C., Himelick, R. E., and MacDonald, L. H., THIS JOURNAL, **38:** 30 (1949).
3. F. D. A. Regulations, Section 141.409 (a).
4. F. D. A. Reguations, Section 141.402 (a).
5. F. D A. Regulations, Section 141.401 (a) (1).
6. F. D. A. Regulations, Section 141.112 (b) (1).
7. Chandler, V. L., and Shaw R. D., *Science*, **104:** 275 (1946).

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Packaging: Pyricidin is supplied in scored, uncoated tablets of 50 mg.—bottles of 100 and 1000.

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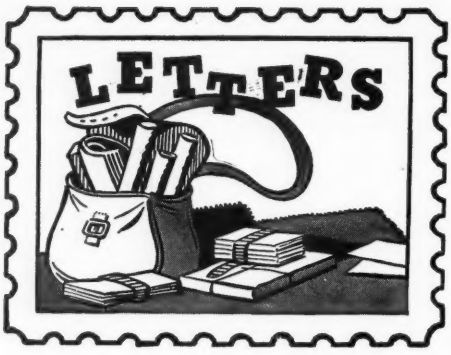

Detailing Programs

Sirs:

I like your "Products to Be Detailed" item in the magazine.

Monticello, Ind. J. BRUCE DODD

(EDITOR'S NOTE: To the many others who have expressed satisfaction with this new department, our thanks. Pharmacists who have found this service to be of value are invited to write to the editors, reporting how they have applied this information to their store operation.)

Indispensable Tool

Sirs:

Thank you ever so much for sending me my back copies of the *Practical Pharmacy Edition* which completes the missing link in my home library. Words cannot express how happy I am to have them, because they give me so much valuable information and serve as a quick reference medium. It has become one of my daily working tools, indispensable to my profession.

Vallejo, Calif. J. T. AJARI

Postgraduate Course

Sirs:

I am very happy to renew my active membership in the AMERICAN PHARMACEUTICAL ASSOCIATION for 1952–53.

At this writing I wish to state that I have enjoyed reading both the *Practical Pharmacy Edition* and the *Scientific Edition* of THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. It is comparable to a continued education in the form of a postgraduate course. It is indeed a privilege to be an active member of such a great organization.

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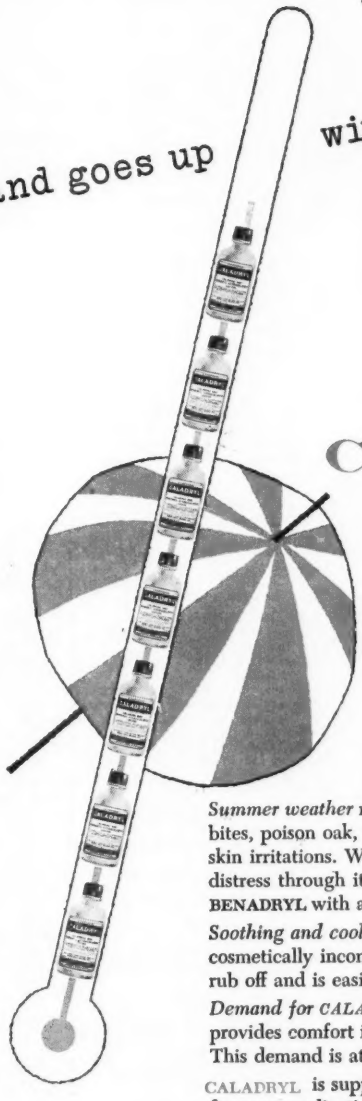

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Burke, T. Willard Swampscott, Mass., March 28, 1952
Culver, Harry E., Middletown, Del., Nov. 6, 1951
Duffy, Henry J., Fall River, Mass., Feb. 28, 1951
Eaton, F. Elmer, Salem, Mass., Sept., 1951
Foy, Donald J., Trenton, N. J., Dec. 28, 1951
Gaston, Gail A., Belington, W. Va., March 24, 1951
Henkel, David M., West Grove, Pa.
Mattingley, V. L., Decatur, Ill., April 16, 1951
Montcalm, Theodore, Indian Orchard, Mass., June 14, 1951
Potter, William W., Mount Pleasant, Iowa, 1951
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*as streptomyces fermentation extractives.

1. Chow, B. F.: J. Nutrition 43:323, 1951
2. Wetzel, N. C. et al.: Science 110:651, 1949

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June, 195

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The product listing appears on the following pages →

PRODUCT	TYPE	DIRECT MAIL	JRNLS.	PERS. CALL
Acon drops & capsules, Endo	aqueous vit. A	X		X
ACTH "National," National	adrenocorticotropic	X	X	X
Acthar Gel, Armour	adrenocorticotropic	X	X	X
Adrenal cortex products, Upjohn		X	X	X
Agoral, Warner	laxative emulsion	X	X	X
Alglyn, Brayten	antacid	Aug.		X
Allbee with C, Robins	B Complex with vitamin C	Aug.	X	X
Alprine, Ulmer	analgesic	July	July	July
Aluminum Penicillin Oral tablets, Hynson, Westcott & Dunning	antibiotic	X	X	X
Amchlor, Brewer		X	X	X
Aminet suppositories, Bischoff	antiasthmatic	X	X	X
Aminodrox, Massengill	aminophylline therapy	X	X	X
Aminophylline suppositories, American Pharmaceutical		July	July	July
Ammivin, National	Khellin therapy	X	X	X
Arthralgen, Whittier	arthralgesic unguent		X	X
Aspogen, Eaton	gastric antacid			X
Asteric, Brewer		X	X	X
Asterol, Hoffmann-La Roche	antifungal prep.	X	X	X
Aureomycin, Lederle		X	X	X
Aveeno, Fougera	colloid fraction	X		X
Axotal tablets, Warren-Teed	analgesic, sedative			X
B Complex fortified, Walker	hematonic			X
B-Tropic, Vale	lipotropic-oxytropic		X	X
Bacimycin, Walker	antibiotic	X	X	X
Band-Aid Plastic Dressings, Johnson & Johnson	surgical dressings	July		
Bar-Tropin, Testagar	Anti-spasmotic	X		X
Belbarb, Haskell	antispasmodic	Aug.	Aug.	X
Belexon fortified, American Pharmaceutical	B complex	Aug.	Aug.	Aug.
Bemocin caps., Ayerst	nutritional			X
Benoquin, Elder		X	X	X
Bentyl, Merrell	antispasmodic	Aug.	X	X
Benzestrol, Schieffelin	estrogen			X
Beta-Concemin ferrated, Merrell	hematinic			Aug.
Be-Zymin, Crookes	digestant	X	X	X
Bicillin suspension, Wyeth	antibiotic	X	X	X
Bidrolin, Armour	lipotropic	X	X	X
Bilogen, Organon	Choleretic-digestant		X	X
Biolac, Borden	infant food		X	X
Biphetacel, Strasenburgh	weight control	X	X	X
Bremil, Borden	infant food	X	X	X
Bristamin lotion, Bristol	antihistaminic			X
Bromo-Flora, Warren-Teed	sedative, antispasmodic			X
Bromural, Bilhuber-Knoll	non-barbiturate	X	X	X
Butazolidin tablets, Geigy	antiarthritic, analgesic	X	X	X
Calamatum w/antihistamine,	allergic dermatoses	X	X	X

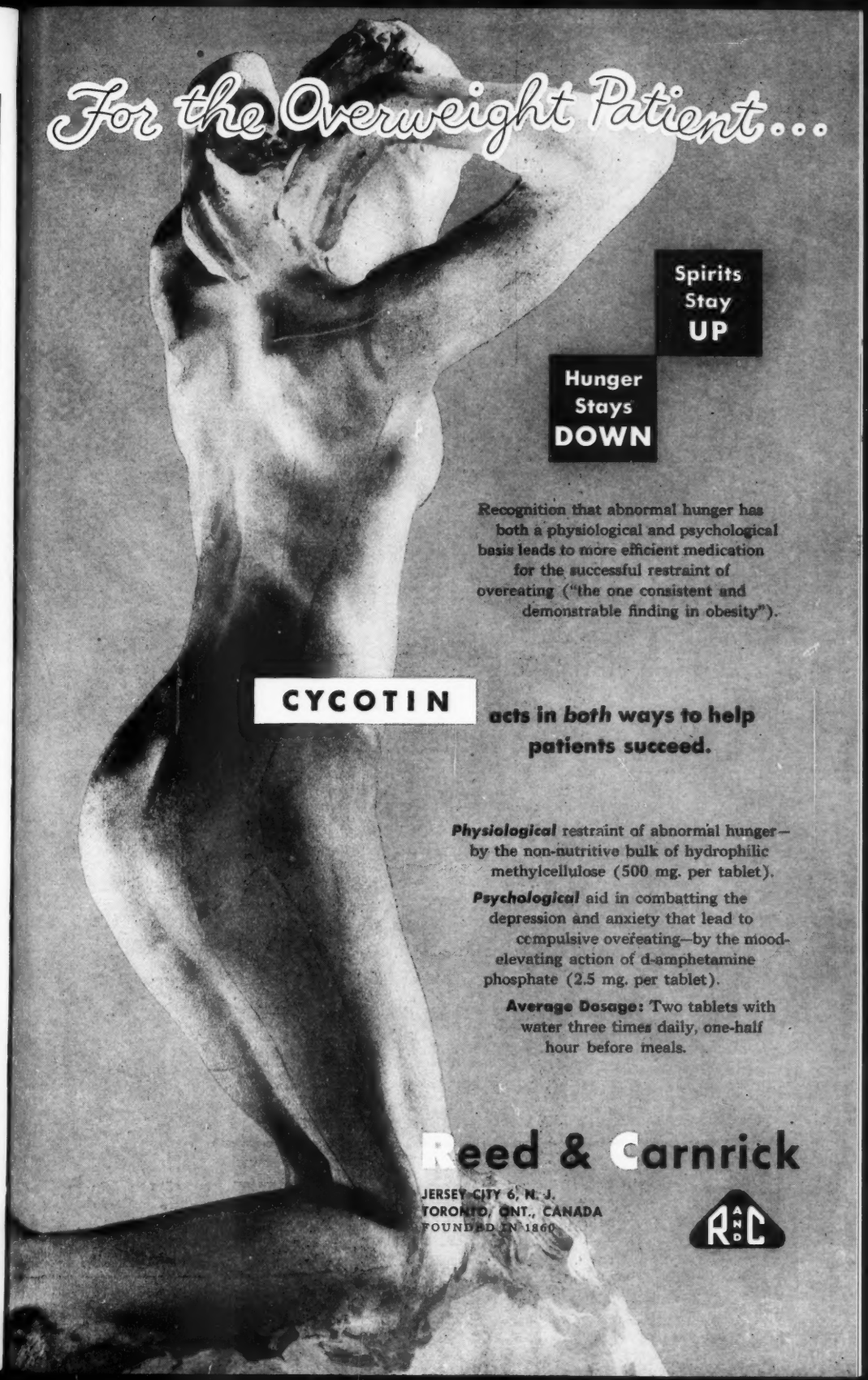
PRODUCT	TYPE	DIRECT MAIL	JRNLS.	PERS. CALL
Feoplex B_{12} drops, Walker	pediatric anemia prep.			X
Fer-In-Sol, Mead Johnson	iron	X	X	X
Flugel compound tab., Breon	antacid demulcent		X	X
Folabin, double strength, Barlow-Maney	injectable	X	X	X
Foralamin, Eaton	antihistaminic			X
Furacin—all forms, Eaton	topical antibacterials		July	X
Furospor cream, Eaton	topical antifungal			X
Gantrisin Ophthalmic, Hoffmann-La Roche	sulfonamide	X	X	X
Gelusil liq. & tab., Warner	antacid	X	X	X
Gensalate, Panray	antirheumatic	X	X	X
Gericaps, Sherman	lipotropic		X	X
Gericole, Sherman	lipotropic		X	X
Gerifort, American Pharmaceutical	geriatric	July	July	July
Gitaligin, White		X	X	X
Hexa-Rutalin, Columbus	cardiac	X		X
HP-Acthar Gel, Armour		X	X	X
Hypno-Bromic compound, Wampole		X	X	X
Hypo-allergenic deodorant, AR-EX		X	X	X
Injectables—complete line, Ulmer		July	July	July
Irocine, Reed & Carnrick	hematinic	X	X	X
Irosul fortified, Haskell	hematinic-vitamin	X		X
Isonizide, Panray	antitubercular			X
Katonium, Winthrop	cation exchange resin	X	X	X
Khelloyd, Lloyd	coronary vasodilator	July	July	X
Kolantyl, Merrell	antipeptic ulcer		X	Aug.
Koloyd, Lloyd	antacid	July		X
Latrodol tablets, Tailby-Nason	relaxant for muscle spasm	X	X	X
Lipomic, Chicago	lipotropic therapy			X
Lipotriad liquid, C. D. Smith	lipotropic			X
Liver inj., Breon	hematinic			X
Lusyn, Maltbie	antispasmodic		X	X
M-Minus 4, Whittier	premenstrual		X	X
Maalox susp. & tab., Rorer	antacid	X	X	X
Malcodex, Maltbie	antibiotic		X	X
Manitole, Strasenburgh	hematinic-tonic	X	X	X
Mephosal, Crookes	rheumatic disorders	X	X	X
Meprane dipropionate, Reed & Carnrick	synthetic oral estrogen			X
Mercurochrome, Hynson, Westcott & Dunning	Antiseptic	X	X	X
Meta-Cine, Brayton	vaginal	X	X	X

Biolac, Borden	infant food		X	X
Biphetacel, Strasenburgh	weight control	X	X	X
Bontil, Borden	infant food		X	X
Bristamin Lotion, Bristol	antihistaminic	X	X	X
Bromo-Flora, Warren-Teed	sedative, antispasmodic			X
Bromural, Bilhuber-Knoll	non-barbiturate	X	X	X
Butazolidin tablets, Geigy	antiarthritic, analgesic	X	X	X
Calamatum w/antihistamine, Tailby-Nason	allergic dermatoses	X	X	X
Calferbee, C. D. Smith	vitamin, minerals			X
Calpurate, Maltbie	cardiac stimulant		X	X
Cellothyl, Chilcott	bulk laxative	X	X	X
Chloresium mucinoid, Rystan	peptic ulcer prep.	X	X	
Chloresium ointment, Rystan	wound dressing	X	X	
Chloresium sol. (plain), Rystan	wound dressing	X	X	
Chloresium tab., Rystan	deodorant	X	X	
Chlor-Trimeton tab. 4 mg., Schering	antihistamine	X	X	X
Cholan HMB, Maltbie	hydrocholeretic		X	X
Cholimeth fortified, Central	lipotropic	X	X	X
Chol-Nine B, Columbus	lipotropic	X		X
Co-Betaron, Warren-Teed	antianemic		X	X
Cobroxin Ampules, Hynson Westcott & Dunning	intractable pain	X	X	X
Comfortine, Rorer	baby ointment	X		X
Cortogen Acetate Tabs., Schering	cortisone	X	X	X
Crystamin Forté, Armour	oral hematinic	X	X	X
Crystar, Armour	tasteless aspirin	X	X	X
Cumertilin, Endo	mercurial diuretic	X	X	X
Cycotin, Reed & Carnrick	appetite depressant	X	X	X
Delomets, Durst	anti-infective	X		X
Dexamyl elixir, SK&F		July		July
Dexedrine spansules, SK&F		X		X
Dexedrine tablets, SK&F		July	X	X
Diasal, Fougera	sodium-free salt substitute	X	X	X
Diatrine HCl tablets, Warner	antihistamine	X	X	X
Dienestrol, White	synthetic estrogen	X	X	X
Digitaline Nativelle, Varick	digitoxin	X	X	X
Dihydrostreptomycin oint., Bristol	for skin & wound infections	X	X	X
Dihydrostreptomycin Otic with Bristamin, Bristol	ear drops	X	X	X
Donnatal, Robins	antispasmodic-sed.	Aug.	X	X
Dormison Caps., Schering	non-barbiturate hypnotic	X	X	X
Dryco, Borden	infant food		X	X
Efocaine, Fougera	local anesthetic	X	X	X
Entozyme, Robins	digestant	July	X	X
Enzo-Cal, Crookes	anesthetic calamine cream	X	X	X
Estinyl tabs., Schering	estrogen	X	X	X
Estivin, Schieffelin	ocular antiallergic	X	X	X
Eurax cream, Geigy	antipruritic	X	X	X

M-Minus 4, Whittier	premenstrual		X	X
Maalox susp. & tab., Rorer	antacid	X	X	X
Malcodex, Maltbie	antibiotic		X	X
Manitabs, Strasenburgh	hypotensive	X	X	X
Mephosal, Crookes	rheumatic disorders	X	X	X
Meprane dipropionate, Reed & Carnrick	synthetic oral estrogen			X
Mercurochrome, Hynson, Westcott & Dunning	Antiseptic	X	X	X
Meta Cine, Brayten	vaginal	X	X	X
Methischol, U. S. Vitamin	lipotropic		X	X
Metrazol, Bilhuber-Knoll	oral analeptic	X	X	X
Minacap, Upjohn	nutritional supple.			X
Mucotin, Harrower	antacid	X	X	X
Mull-Soy, Borden	hypoallergenic food	X	X	X
My-B-Den, Bischoff	antipruritic	X	X	X
Naprylate—all forms, Strasenburgh	for vaginitis	X	X	X
Natrinil, National	cation exchange resin	X	X	X
Neocylate w/Colchicine, Central	gouty arthritis	X	X	X
Neomycin,C.T., Upjohn	antibiotic			X
Neo Sedaphen, C. D. Smith	hypnotic sedative			X
Neosynephrine, Winthrop	topical vasoconstrictor	X	X	X
Neothylline, Barlow-Maney		X	X	X
Neoxyn, Rorer	poison ivy lotion	X	X	X
Neuronidia, Schieffelin	sedative-hypnotic			X
Nitranitol, Merrell	hypotensive	July	X	X
Nutrisup, Chicago	vitamin-mineral		July	X
Obedrin, Massengill	obesity control	X		X
Octaplex, American Pharmaceutical	multivitamin	Aug.	Aug.	Aug.
Omni-Beta improved, Warner	vitamin B-complex	X	X	X
Oranixon, Organon	Muscle Relaxant		X	X
Orapen liquid, Schenley	oral penicillin	X	X	X
Orgalac, Wampole		X	X	X
Organidin, Wampole		X	X	X
Orgaphen, Wampole		X	X	X
Panalgesic, Poythress	local analgesic	X	X	X
Panparnit tablets, Geigy	antispasmodic	X		X
Pantabeeroid, Haskell	thyroid therapy	X		X
Panthoderm cream, U. S. Vitamin	antipruritic	X	X	X
Parasal, Panray	antitubercular	X	X	X
Patheba, Brayten	gestational supple.	X		X
Peptenzyme elixir, Reed & Carnrick				X
Percodan, Endo	analgesic	X		X
Peritrate, Chilcott	coronary vasodilator	X	X	X
Pertenal, Crookes	hypertension	X	X	X
Phenergan products, Wyeth	antihistaminic	X	X	X
Phospho-Soda, Fleet	saline laxative	Aug.	X	X
Physotropin, Durst	antispasmodic	X		X
Pipanol, Winthrop	antispasmodic	X	X	X

PRODUCT	TYPE	DIRECT MAIL	JRNLS.	PERS. CALL
Polysorb, Fougera	ointment base	X	X	X
Poly-Vi-Sol, Mead Johnson	vitamins for babies	X	X	X
Potensors, Forte, Tailby-Nason	resistant hypertension	X	X	X
Precalcin, Walker	pre- & post-natal	X	X	X
Premarin, Ayerst	conjugated estrogen	X	X	X
Profenil 120 mg., C. D. Smith	antispasmodic			X
Progestoral Buccal Tabs., Organon	oral luteal hormone			X
Proloid, Chilcott	thyroid	X	X	X
Protamide, Sherman	nerve root therapy		X	X
Prulose complex liq., Harrower	laxative	X	X	X
Prulose complex tab., Harrower	laxative	X	X	X
Pyrapar, Ulmer	premenstrual	Aug.	Aug.	Aug.
Pyrilamine Maleate, Elder		July	X	X
Quadrinal, Bilhuber-Knoll	antiasthmatic	X	X	X
Quiess, Durst	sedative tablet			X
Red Cross Adhesive Tape, Johnson & Johnson	surgical dressings	July		
Redisol elixir, Sharp & Dohme	vitamin B_{12}	X	X	X
Resinat H-M-B, National	anion exchange resin	X	X	X
Resion, National	polyamine-methylene resin	X	X	X
Resorcitate, Almay	antiseborrhic	X	X	X
Ridupois tab., Elder		July		July
Robalate, Robins	antacid	Aug.	X	Aug.
Roncovite, Lloyd	hematinic	July		X
Rutaminal, Schenley	cardiovascular	X	X	X
Salrin tab., Warren-Teed	analgesic		X	X
Sedamyl, Schenley	daytime sedative	X	X	X
Semhyten, Massengill	antihypertension	X	Aug.	X
Semikon hydrochloride cream, Massengill	antihistamine		Aug.	Aug.
Silmidate, Haskell	antirheumatic	July	X	X
Similac liquid, M & R		X	X	X
Similac powder, M & R		X	X	X
Solfoton, Poythress	sedative	X	X	X
Solusponge, Panray	hemostatic agent	X	X	X
Somnadex, Central	hypnotic	X	X	X
Somtrol, Columbus	sedative	X		X

PRODUCT	TYPE	DIRECT MAIL	JRNLS.	PERS. CALL
Steraject, Pfizer	antibiotic cartriges	X	X	X
Stolic tab., Sharp & Dohme	hypertensive agent	X	X	X
Streptomagma, Wyeth	antidiarrheal	X	X	X
Supertah "5" with Sulfur & Salicylic acid, Tailby-Nason	dermatitis, hairy areas	X	X	X
Sus-Phrine, Brewer		X	X	X
T C S, Poythress	cardiac stimulant	X	X	X
Tedral, Chilcott	antiasthmatic	X	X	X
Telepaque, Winthrop	oral cholecystographic medium	X	X	X
Terramycin oral susp., Pfizer		X	X	X
Terramycin tablets, Pfizer		X	X	X
Thantis, Hynson, Westcott & Dunning	Throat lozenges	X	X	X
Theoglycinate, Brayten	theophylline			X
Thephorin—all forms, Hoffmann-La Roche	antihistamine	X	X	X
Thesodate, Brewer		X	X	X
Thestis, Durst	hormone inj.			X
Titralac, Schenley	antacid	X	X	X
Tolyspaz, Chicago	muscle relaxant			X
Topaminic, Sharp & Dohme	analgesic-	X	X	X
Trilene, Ayerst	analgesic	X	X	X
Tri-Vi-Sol, Mead Johnson	vitamins A, D, & C	X	X	X
Trocinate, Poythress	antispasmodic	X	X	X
Tromexan tab., Geigy	anticoagulant	July	July	July
Tryptar, Armour	necrotic tissue debridement	X	X	X
Turicum, Whittier	hydrophilic lubricoid		X	X
Tyrotrace, Sharp & Dohme	bacitracin-tyrothricin	X	X	X
Ulvical, Ulmer	prenatal supple.	Aug.	Aug.	Aug.
Urised, Chicago	urinary antiseptic	X	X	X
Valoctin, Bilhuber-Knoll	sedo-spasmolytic	X	X	X
Varidase, Lederle		X	X	X
Vi-Aqua syrup, U. S. Vitamin	aqueous multi-vit.	July	X	X
Vi-Aquamin, U. S. Vitamin	vitamin-mineral	Aug.	X	X
Vifort drops & caps., Endo	aqueous polyvitamin	X	X	X
Vi-Penta drops, Hoffmann-La Roche	multivitamin	X	X	X
Vir-I-Phyl, Barlow-Maney		X	X	X
Vitamin A & D ointment, White		X	X	X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Physiological restraint of abnormal hunger—by the non-nutritive bulk of hydrophilic methylcellulose (500 mg. per tablet).
Psychological aid in combatting the depression and anxiety that lead to compulsive overeating—by the mood-elevating action of d-amphetamine phosphate (2.5 mg. per tablet).
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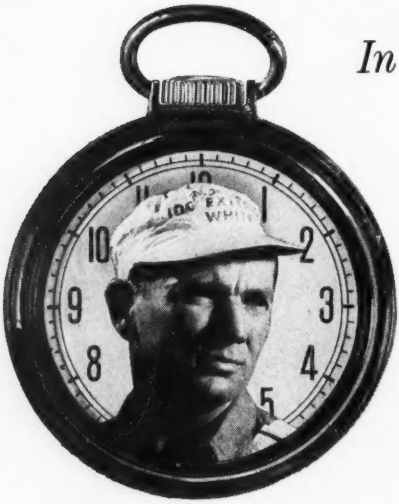

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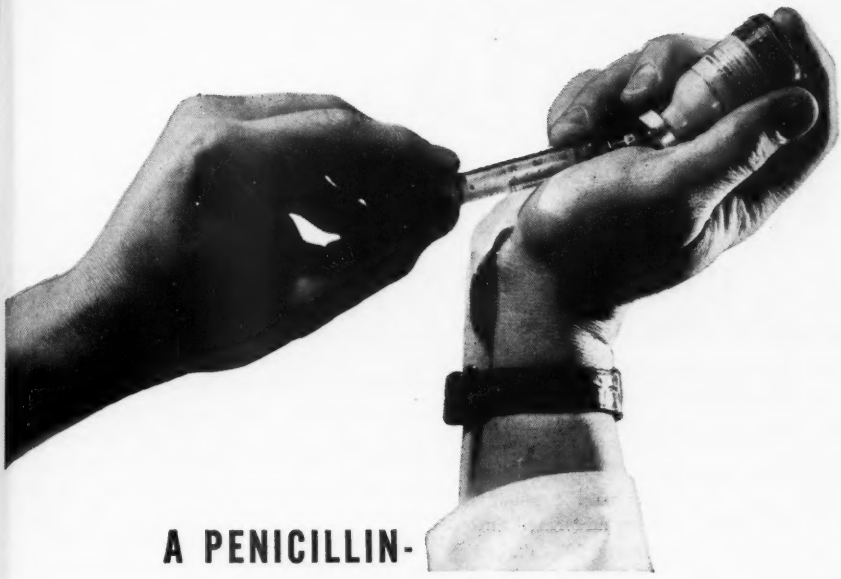

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RECENT

PROGRESS IN MEDICINE

DESTRUCTION OF FUNGI IN SHOES

In Queries and Minor Notes, the editors of the *Journal of the American Medical Association* answer the question of an Indiana physician on the best means of destroying fungi in shoes. Since the question is a common one, pharmacists should direct their physicians to the answer. The best method currently being advocated employs "carboxide gas" (containing 90% carbon dioxide and 10% ethylene oxide), under 20 lb. of pressure at 50° C. for 8–10 hours in an autoclave. Fungistatic dusting powders, such as desenex powder or asterol powder, if dusted liberally into the socks and shoes will inhibit the growth of dermatophytes but will not kill them, although they will prevent and control the clinical disease.

(Queries and Minor Notes, *J.A.M.A.*, **149:** 408, May 24, 1952.)

ROUNDWORM INFESTATION IN CHILDREN

The problem of treating roundworms in children is discussed in the "Information Please" section of *GP*, the publication of the American Academy of General Practitioners. The editors report that the medication of choice is now Hexylresorcinol Crystoids, soft gelatine capsules 0.2 Gm. (3 grains). The capsule must be swallowed without being opened or the mouth will be burned, and the most successful way of insuring that it is not broken is to place it far back on the tongue, followed quickly by a glass of water. Proper dosage and accompanying treatment are presented briefly, but clearly.

(Information Please, *GP*, **5:** 5, 92, May, 1952.)

SELF-EXAMINATION FOR CANCER OF THE BREAST

Experience has shown that breast carcinoma is easily curable by good surgery when the primary lesion is small and the disease is limited to the breast. Because of that fact, Dr. C. D. Haagensen, of the Institute of Cancer Research and the department of surgery, College of Physicians and Surgeons, Columbia University, strongly advocates self-examination of the breasts. According to Dr. Haagensen, examinations should be made at least every two months in order to be reasonably certain of detecting breast carcinoma. Dr. Haagensen approached the concept of self-examination with some misgivings, due largely to the possibility of creating a cancerphobia, and also because of the inability of the women to make proper examination. Today he is convinced, through experience, that both objections are minor. In a series of cases where breast cancer was detected before it spread to the underarm glands, there was a five-year clinical cure of approximately 90% after surgery. However, when the cancer had progressed to a point under the arms, only 41.3% were found to remain free of cancer for five years. The paper by Dr. Haagensen is illustrated with charts and photographs showing the proper technique for self-examination, and Dr. Haagensen urges his fellow physicians to suggest the technique to their patients. Because of the potential danger of creating cancerphobia, he states that physicians should teach the method only to "those of their patients whom they know well enough to be certain that they will be able to think about the problem with the necessary degree of detachment."

(Haagensen, C. D., *J.A.M.A.*, **149:** 356, May 24, 1952.)

TREATMENT OF MIGRAINE WITH ERGOTAMINE TARTRATE-CAFFEINE SUPPOSITORIES

Since effective treatment of migraine continues to be a major medical problem facing the physician, new forms of treatment are important. The basis of a new clinical study involves the treatment of 30 clinic and private patients with proved migraine. Twenty six were women; 4 were men. The ratio is consistent with the

(Continued on page 386)

SQUIBB

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Choice for Aqueous Procaine Penicillin Therapy

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Squibb 300,000 Units Procaine Penicillin G in Aqueous Suspension

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Crysticillin Fortified Duomatic
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Squibb 300,000 Units Procaine Penicillin G in Aqueous Suspension in the New, Sterile Unimatic Disposable Unit — Ready to Use, Easy to Inject

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A white, creamy, non-staining ointment prepared from a concentrate of crude coal tar, uniformly milled in proportions to equal either a five (5%) or ten (10%) percent crude tar ointment, combined with Zinc Oxide and Starch in proper proportions. 2-oz. tubes and jars.

SUPERTAH-5
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New form of Supertah containing tar component of regular Supertah-5 but in non-greasy base for dermatitis in hairy areas.* In 1½-oz. jars.

**This new ointment can be massaged into skin and scalp without leaving a trace of greasiness and washes off with complete ease.*

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Progress in Medicine

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established fact that migraine is more frequent among women, according to the author. At the time of the study, 10 patients were receiving Gynergen injections, with good results; 10 were using Cafergot or codeine tablets with fair results, and 10 patients were undiagnosed. For the period of nine months of the study, all patients were given rectal suppositories containing 2 mg. of ergotamine tartrate and 100 mg. of caffeine. They were advised to use the suppositories within one hour of the onset of the headache. All other forms of medication previously used were withdrawn. Later the regimen was changed to use within one to two hours of the onset, and then to after three hours. When inserted within one hour, 24 of the 30 patients had complete disappearance of the headache within two hours; three had sufficient relief to permit continuation of work; and the remaining three showed poor results (progression of the intensity of the headache). The results obtained when the suppositories were used two to three hours after onset were 18 excellent, 6 good, and 6 poor. After three hours, results were 8 excellent, 8 good, and 14 poor. Six patients complained of an aggravation of nausea and vomiting accompanying the headache, but these reactions were minimized when the six patients used only one half of the suppository, inserting the second half 20 to 30 minutes later.

(Zanfagna, Phillip E., *Postgraduate Med.*, **11:** 423, May, 1952.)

KHELLIN THERAPY IN ANGINA PECTORIS

According to studies reported in three papers published in the May, 1952, issue of *Annals of Internal Medicine*, khellin requires further clinical study to determine its proper use in the treatment of angina pectoris. The percentage of patients responding favorably to treatment differed in each report. The incidence of side reactions, especially nausea, is discussed in all reports. One report claims a reduction in side reactions when the drug is administered parenterally instead of orally. All agree that a major factor in control of side reactions is the determination in each case of the minimum satisfactory dosage. The use of crystalline khellin appeared to facilitate dosage control.

(*Ann. Int. Med.*, **36:** 1173, 1179, 1190, May, 1952.)

(Continued on page 388)

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Progress in Medicine

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IMPETIGO TREATED WITH SULFONAMIDE-UREA POWDER

As a result of a series of 701 patients with impetigo treated with a powder containing 70% sulfathiazole and 30% urea, three San Francisco physicians have concluded that such a powder form is superior to an ointment with a greasy base. Of the 701, 95.6% were cured within a week. Local dermatitis occurred in only 0.57% of the cases. By comparison, 59 patients were treated with 5% sulfathiazole ointment, of whom 44, or 74.6%, were cured within a week. When 5% ammoniated mercury ointment was used in the treatment of 268 patients, 146, or 54.4% were cured within the one-week period.

(Rees, R. B., Hamlin, E. M., and McGinley, J. P., *Calif. Med.*, **76:** 344, May, 1952.)

PROPER USE OF METHIUM AND APRESOLINE, ALONE AND IN COMBINATION

In a lengthy paper, reviewing the previous studies made concerning hexamethonium chloride (Methium) and 1-hydrazinophthalazine hydrochloride (Apresoline), four physicians of Duke University, Durham, N. C., present certain cautions in the use of these two drugs. While crediting their value, dangers inherent in their indiscriminate use are considerable, and patients should be carefully observed during treatment, and their prior history well defined. Pharmacists should refer their physicians to this paper so that the full benefits can be derived through proper care in the use of these two new drugs.

(Grimson, K. S., Orgain, E. S., Rowe, C. R., Jr., and Sieber, H. A., *J.A.M.A.*, **149:** 215, May 17, 1952.)

AMINO ACID REQUIREMENTS

Although the proteins of the human body contain twenty known amino acids, only eight are considered to be "essential" to the diet. Professor W. C. Rose, University of Illinois biochemist, who recently received the Willard Gibbs Medal in chemistry, reported that human experiments between 1942 and 1952 have developed the following data: Histidine, an amino acid which is indispensible for rats, and arginine which is necessary for maximum growth in rats, are unnecessary in the human diet. These and ten other "unessential" amino acids are synthesized by the human body. The essential amino acids and the minimum amount of each that must be added to the human body daily are given by Professor Rose as, L-tryptophan, 0.25 Gm.; L-phenylalanine, 1.10 Gm.; L-lysine, 0.80 Gm.; L-theonine, 0.50 Gm.; L-valine, 0.80 Gm.; methionine, 1.10 Gm.; Le-leucine, 1.10 Gm.; and L-isolencine, 0.70 Gm. Twice these amounts are recommended for daily intake. Professor Rose finds the possibility that any one in the United States would experience an amino acid deficiency is very remote, unless it to be among some of the dietary faddists. To this might be added those individuals who are suffering from an abnormal condition that interferes with proper assimilation of proteins and amino acids.

(Rose, William C., before Chicago Section, *American Chemical Society*, May 23, 1952.)

Legal Actions of the

U.S. FOOD AND DRUG ADMINISTRATION

COURT JUDGMENTS—APRIL 1952

Adulterated and Misbranded Drugs and Devices

Elizabeth, N. J. Cortisone acetate tablets, a new drug for which a new-drug application was not effective; information on labels was inadequate. 1 defendant fined $500, given a 1-year suspended jail sentence, and placed on probation for 1 year.

Cambridge, Ohio. U. S. Stock Food Tonic, Pheno-Min-Ton, U. S. Poultry Food Tonic, U. S. Worm Powder, and U. S. Stock Tonic (veterinary drugs) contained false and misleading therapeutic claims. 1 defendant and firm fined a total of $350.

Over-the-Counter Sales—Prescription Drugs

Chicago, Ill. Amphetamines and barbiturates sold without physicians' prescriptions. 1 defendant fined $300 and court costs.

Chicago, Ill. Amphetamines and barbiturates sold without physicians' prescriptions. 2 defendants fined $150 each, and court costs.

Elmwood Park, Ill. Amphetamines and barbiturates sold without physicians' prescriptions. 1 defendant fined $300 and court costs.

Roxbury, Mass. Barbiturates sold without physicians' prescriptions. 1 defendant fined $500, given a 1-year suspended jail sentence, and placed on probation for 2 years.

Steubenville, Ohio. Amphetamines, sulfonamides, thyroid, and Premarin sold without physicians' prescriptions. Firm fined $200; 1 defendant fined $100; and 1 defendant fined $50.

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